



**IMIBIC**

MAIMONIDES BIOMEDICAL  
RESEARCH INSTITUTE OF  
CORDOBA



# ANNUAL REPORT 2012



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01

Introduction



The Maimonides Institute for Biomedical Research in (IMIBIC, in Spanish), has started a new age after its recognition as a Health Institute by the Carlos III Health Institute in 2011. Within 2012, it has fostered new strategies in order to become a reference in the research of excellence, focused on clinical translation.

As a result of its activity, it has generated new knowledge which is reflected in its scientific production with the publication of the sum of 284 **documents**. 43% of them have been generated with the collaboration of national groups and 39% have been published with international groups.

Moreover, we have strengthened internal collaboration with the aim of favoring the interaction between the groups at IMIBIC as a driving force to face the most ambitious challenges. This collaboration has affected 18% of the publications. The total **impact factor** has been **1.080,45 points**, and it is remarkable the improvement in the quality of our works, 23% in the first decile and 31% in the first quartile. Moreover, as a result of the effort to promote the transference of the research knowledge, we have created 2 spin-off and we have finished 14 property register, almost doubling the result of the past year.

Regarding the raise of new resources, **33 new research projects** have been obtained together with **125 clinical trials** and **observational studies** and **32 collaboration agreements with different companies**.

Besides, participation in the Andalusian Plan for Research, Development and Innovation (PAIDI, in Spanish) and in the Strategic Plans of the Carlos III Health Institute –including CIBER and REDES (Networks)- has grown, which reflects our researchers' solid commitment to the national and international repercussion of their work.

IMIBIC has continued its own program to encourage the mobility of their researchers and to reward the most excellent results. As far as the training program is concerned, our PhD in Biomedicine has kept the Quality Label Recognition with a total of 24 doctoral theses produced.

For all this intense effort, IMIBIC's professionals, scientists, technicians and management staff deserve special recognition for the sustained effort they are making to meet society's demands, which is key to improving people's quality of life and overcoming the difficulties of the current economic situation.



*Francisco Pérez Jiménez*  
*Scientific Director*



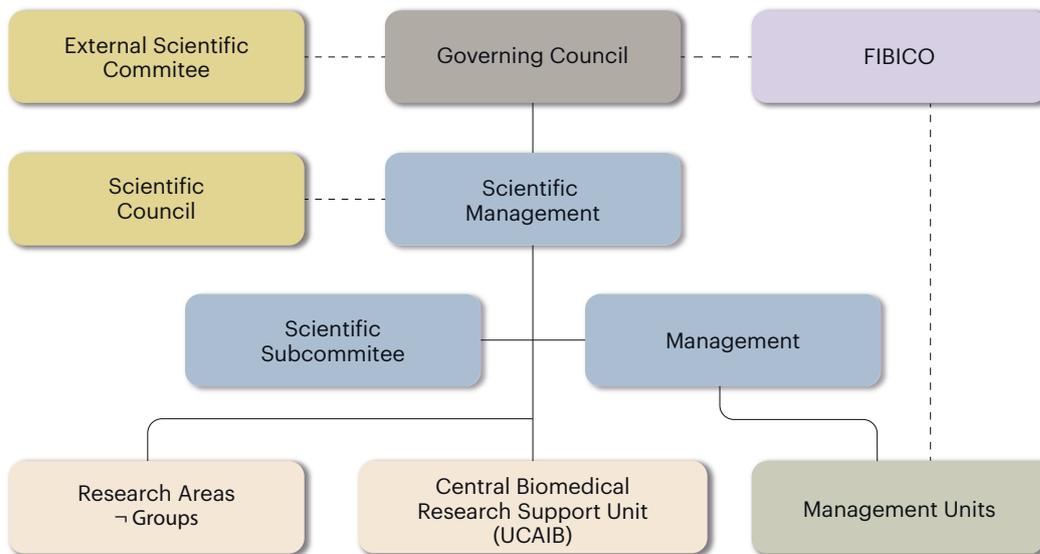
02

Physical, Human,  
Technological and  
Economic Resources



## 2.1. IMIBIC Organization Chart

The administrative and governing structure of the IMIBIC is explained in the following diagram:



## A. Associated Bodies

### Governing Council

The Governing Council is composed of the following members:

- Two representatives from the Regional Ministry of Health of the Andalusian Regional Government  
**Mr. Jerónimo Pachón Díaz.** General Director for Quality, Research, Development and Innovation. Chairman of the Governing Council.  
**Mr. José Manuel Aranda Lara.** Managing Director of the Reina Sofía University Hospital and president of FIBICO.
- Two representatives from the Andalusian Regional Government's Department of Health:  
**Ms. Eva María Vázquez Sánchez.** General Director for Research, Technology and Business.  
**Mr. José Ignacio Expósito Prats.** Provincial Delegate of Economy, Innovation, Science and Employment of Córdoba.
- Two representatives of the University of Córdoba  
**Mr. Justo Castaño Fuentes.** Vice-Chancellor of Scientific Policy and Campus of Excellence at the University of Córdoba.  
**Mr. José López Miranda.** Associate Dean of Hospital Affairs of the Faculty of Medicine.
- IMIBIC's Scientific Director  
**Mr. Francisco Perez Jimenez.**
- One representative from the Progress and Health Foundation  
**Mr. Juan Jesús Bandera González.** Managing Director.

### Scientific Council

The Scientific Council is an advisory body to the Scientific Directorate. It is composed of the Scientific Director and the Deputy Director of IMIBIC, all Head of Research (HD), Emerging Researchers (ER), a representative of the Reina Sofia University Hospital Board of Directors (RSUH), the IMIBIC's Manager and representatives of the technical and management staff. It was established on July 9th, 2009.

### Steering Committee

The Standing Committee is a body appointed by the Scientific Council, which mission is to assist the Scientific Director in the performance of his duties. It acts as a cornerstone in the integration and motivation of the personnel at the IMIBIC. It is an advisory body to the Directorate, though its decisions are not binding. It was established on July 9th, 2009 under the name of Advisory Council, and it was ratified by the Scientific Council as a standing committee on December 21st, 2009.

## B. Individual Bodies

### Scientific Manager

Dr. Francisco Pérez Jiménez, Professor of Medicine and Head of the International Medicine Service at Reina Sofía University Hospital. He was re-named scientific director of IMIBIC by the Governing Council at a meeting held on December 11th, 2012.

### Deputy Director

Prof. Dr. Manuel Tena Sempere, Professor of Physiology at the Faculty of Medicine of the University of Córdoba. He was named Scientific Deputy Director by the Governing Council at a meeting held on 21st June, 2012.

### Manager

Dr. José Miguel Guzmán de Damas holds a MD in Pharmacy (specialty in Hospital Pharmacy), a MD in Business Administration and Management and an Executive MBA from the IESE Business School in Barcelona, Spain. He was appointed Manager of IMIBIC by the Governing Council at a meeting held on December 21st, 2010.

## 2.2. IMIBIC Scientific Organization Chart

This section includes a description of the scientific organization of IMIBIC and the Central Support Unit for Biomedical Research (CSUBR). As for the former, on April 21st, 2009, the Governing Council approved the division of IMIBIC into four Scientific Areas and appointed the coordinators for each area, who had previously been proposed by the researchers themselves. Coordinators are listed below: In a meeting held on 21st June 2012, the Governing Council appointed Dr. M. Malagón Poyato as the coordinator of the B AREA. Similarly, in a meeting held on 11st December 2012 the Governing Council approved the new Scientific Organization Chart of the IMIBIC:

### A AREA: Immunology, Inflammation, Oncology & Infectious Diseases

**Coordinator: Rafael Solana Lara**

This area includes researchers focused on studying the biological response to exogenous or endogenous factors, with special focus on events of an inflammatory, immune, thrombotic or proliferative nature. The researchers and groups composing this area are listed below:

Code	Name	Researchers
A-01	T and NK Immunosenescence. Immune Antiviral Response	Dr. Rafael Solana Lara (HR) Dr. José Peña Martínez (CO-HR)
A-02	Oxidative and Nitrosative Stress in Acute and Chronic Liver Complaints	Dr. Manuel de la Mata García (HR) Dr. José Antonio Bárcena Ruiz (CO-HR)
A-04	Infectious Diseases	Dr. Julián de la Torre Cisneros (HR) Dr. Antonio Rivero Román (CO-HR)
A-05	Inflammation and Cancer	Dr. Eduardo Muñoz Blanco (HR)
A-07	Systemic autoimmune and chronic inflammatory diseases of the musculoskeletal system and connective tissue	Dra. Rosario López Pedrera (HR) Dr. Eduardo Collantes Estévez (CO-HR)
A-08	New Cancer Therapies	Dr. Enrique Aranda Aguilar (HR) Dr. Antonio Rodríguez Ariza (E)
A-09	Nephrology Cell Damage in Chronic Inflammation	Dr. Pedro Aljama García (HR) Dra. Julia Carracedo Añón (CO-HR)
Aas-01	Lung Transplants Thoracic Neoplasms	Dr. Ángel Salvatierra Velázquez (AR)
Aas-06	Comprehensive Nursing Care. Multi-disciplinary Perspectives	Dra. Maria Aurora Rodríguez Borrego (AR)
Aas-07	Pneumology	Dr. Bernabé Jurado Gámez (AR)

## AREA B: Nutrition, Metabolism and Endocrinology

Coordinator: M<sup>a</sup> del Mar Malagón Poyato

This area includes researchers focused on health problems related to nutrition, metabolism and hormone regulation. It is made up of the researchers and groups listed in the table below:

Code	Name	Researchers
B-01	Hormones and Cancer	Dr. Justo P. Castaño Fuentes (HR) Dr. Francisco Gracia Navarro (CO-HR) Dr. Raúl M. Luque Huertas (CO-HR)
B-02	Nutrigenomics Metabolic Syndrome	Dr. José López Miranda (HR) Dr. Francisco Pérez Jiménez (CO-HR)
B-03	Hormone regulation of energy balance, puberty and reproduction	Dr. Manuel Tena Sempere (HR)
B-06	Metabolism and Adipocyte Differentiation. Metabolic Syndrome	Dra. M <sup>a</sup> del Mar Malagón Poyato (HR) Dr. Francisco Gracia Navarro (CO-HR)
B-08	Epidemiological Research in Primary Care	Dr. Luis Ángel Pérula de Torres (HR)
B-09	Calcium metabolism. Vascular calcification	Dr. Mariano Rodríguez Portillo (HR) Dra. Yolanda Almadén Peña (CO-HR)
BE-05	Oxidative Stress and Nutrition	Dr. Isaac Túnez Fiñana (EI)
BE-07	Metabolism in Children	Dra. Mercedes Gil Campos (EI)
Bas-02	Endocrinology and Nutrition Insuline Resistance, Diabetes and Metabolism	Dr. Pedro Benito López (AR) Dr. Juan Antonio Paniagua González (ER)
Bas-03	Growth Study. Endocrinology and Nutrition in Children	Dr. Ramón Cañete Estrada (AR)
Bas-05	Clinical Analysis	Dr. Cristóbal Aguilera Gámiz (AR) Dr. Fernando Rodríguez Cantalejo (AR) Dr. Javier Caballero Villarraso (AR)

## AREA C: Cell Therapy Organ Transplantation

**Coordinator: Inmaculada Herrera Arroyo**

This Area includes researchers involved in the use of new therapies -especially stem cell therapies-, invasive therapies and organ transplantation. It is made up of the researchers and groups listed in the table below:

Code	Name	Researchers
C-01	Cell Therapy	Dr. I. Concepción Herrera Arroyo (HR)
C-02	Invasive Cardiology and Cell Therapy	Dr. José Suárez De Lezo Cruz-Conde (HR)
C-03	Cell Biology in Hematology Hypercoagulability	Dr. Joaquin Sánchez García (HR) Dr. Francisco Velasco Gimena (CO- HR)
C-04	Pathophysiology of the vitamin D endocrine system. Biotechnology and aging	Dr. José Manuel Quesada Gómez (HR)
C-05	Translational Research in Transplant Surgery of Solid Organs	Dr. Javier Briceño Delgado (HR)
Cas-04	Urology and Sexual Medicine	Dra. M <sup>a</sup> José Requena Tapia (AR) Dr. Francisco Anglada Curado (AR)

## AREA D: Integrative Medicine and New Technologies

**Coordinator: Rafael Medina Carnicer**

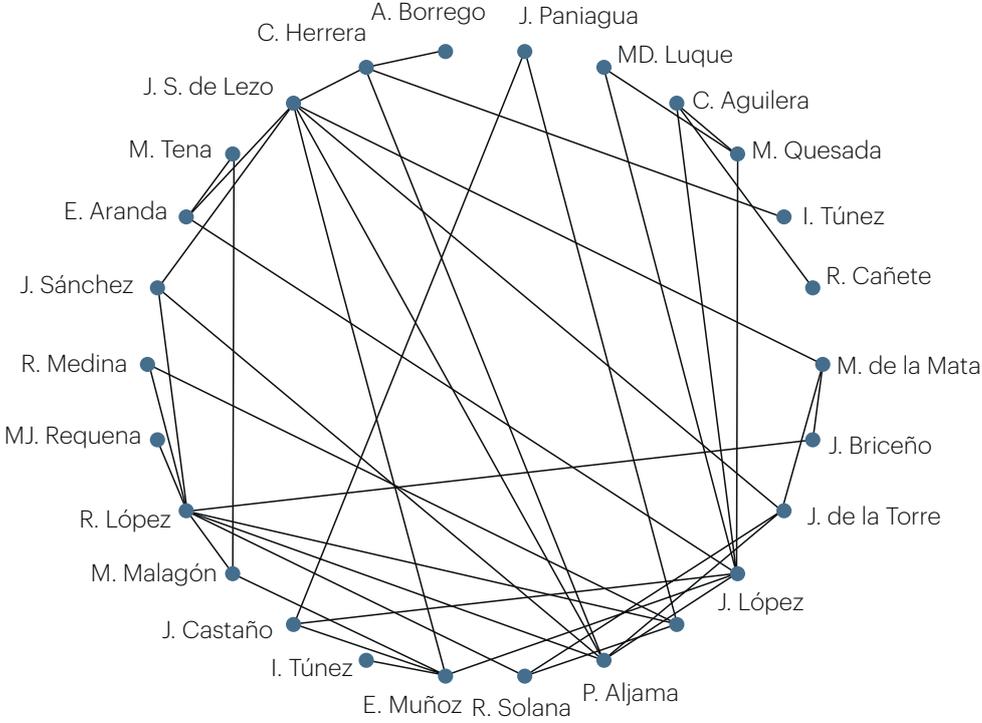
This Area includes researchers focused on the use of new technologies and of a scientific approach using a systems biology-based methodology. It is composed of the following groups and researchers:

Código	Denominacion	Investigadores
D-01	Applications of Artificial Vision	Dr. Rafael Medina Carnicer (HR)
D-03	Behavioural Genetics and Diseases	Dr. Manuel Ruiz Rubio (HR)
D-04	Metabolomics. Identification of Bioactive Components	Dra. M <sup>a</sup> Dolores Luque De Castro (HR)
D-05	Epigenetics	Dra. Teresa Roldán Arjona (HR)
DE-07	Identification of Antigenetic Proteins for the Development of new Vaccines	Dr. Manuel José Rodríguez Ortega (EI)

### 2.2.1. Collaborative Relationships among Research Groups

The IMIBIC maintains an active cooperation policy among its research groups (both, within and among the different Scientific Areas) based on the scientific programs of the IMIBIC. This cooperation is focused on research excellence with an international projection.

The graphic below shows collaborative relationships among research groups at IMIBIC for the year 2012.



## 2.3. Central Support Unit for Biomedical Research

The IMIBIC has undertaken a functional reorganization of its human and material resources in order to build a shared structure supporting research activities, known as the UCAIB: Unidad Central de Apoyo a la Investigación Biomédica (in English, Central Support Unit for Biomedical Research). Its aim is to provide assistance to researchers interesting in launching or consolidating biomedical research initiatives.

At present, the UCAIB has a team of five advanced technologists providing support to research groups. These experts are listed below:

Name	Academic Qualification	Affiliation	Status
M <sup>a</sup> CARMEN MUÑOZ VILLANUEVA	Doctor of Medicine	FIBICO	Stable <sup>(1)</sup>
MARÍA JOSÉ GÓMEZ LUNA	Doctor of Biology	FIBICO-C	Co-financed by FIBICO and ISCIII
ESTHER PERALBO SANTAELLA	Doctor of Biology	FIBICO-C	Co-financed by FIBICO and ISCIII
EDUARDO CHICANO GÁLVEZ	Doctor of Biochemistry	FIBICO	Estabilizado <sup>(2)</sup>
DAVID OVELLEIRO FRAILE	MD in Biochemistry	FIBICO	Stable <sup>(2)</sup>

(1) Stabilization Programme for Researchers and Support Technicians (ISCIII Programme I3SNS).

(2) Stabilization Programme for Researchers and Support Technologists (Andalusian Regional Government's Programme).

In addition, in early 2013 two further advanced technologists joined the IMIBIC, as follows::

Name	Academic Qualification	Affiliation	Status
ANA BELÉN POZO SALAS	Laboratory Advanced Technologist	FIBICO-C	Co-financed by FIBICO and ISCIII
ANTONIA ARROYO SÁNCHEZ	Nuclear Medicine Advanced Technologist	FIBICO-C	Co-financed by FIBICO and ISCIII

This staff members are embedded into the UCAIB's structure, which is described in the Research Facilities and Support Plan.

It includes:

### a.- Technological Processes Unit

- Subunit for Large Preparation Groups and Analysis: María José Gómez Luna.
- Cytomics Subunit: Esther Peralbo Santaella.
- Proteomics Subunit: Eduardo Chicano Gálvez.
- Bioinformatics Subunit: David Ovelleiro Fraile.
- Animal Housing Subunit: The advanced technologist Ana Belén Pozo Salas joined us in early 2013.
- Radioactive Isotopes Laboratory: The advanced technologist Antonia Arroyo Sánchez joined us in early 2013.

### b.- Quality, Training and Methodological Support Unit

These two subunits are being developed by a highly qualified expert in Research Methodology and Biostatistics, with a Master in Quality: Maria Carmen Muñoz Villanueva.

### c.- Other Support Units

- 1.- HURS biobank. The Biobank of the Reina Sofia University Hospital collaborates with IMIBIC and is integrated into the network of Biobanks of the Carlos III Health Institute. The Coordinator is Manuel Medina Pérez.
- 2.- CAIBER: In the Reina Sofia University Hospital, there is a CAIBER node conducted by the IMIBIC researcher Mr. Joaquín Alanís López.
- 3.- The IMIBIC has two animal housing units: one at the School of Medicine and another at the HURS. It also has the support of the Animal Housing Unit and the Veterinary Hospital, both located at the University of Cordoba Campus Rabanales.
- 4.- The IMIBIC receives technical support from the SCAI (Central Support Services for Research) of the University of Córdoba.

## 2.4. Economic Resources

The table below shows IMIBIC's (FIBICO's) sources of income for the year 2012, which amount to 4,966,939.53 Euros:

	Amount
RETICS	156.894,84 €
Provision of Services	266.157,30 €
Facilities	72.138,12 €
Research Projects	2.241.386,92 €
Personnel Program Financing	291.835,97 €
Clinical Trials	1.451.420,65 €
Agreements	66.079,57 €
Donations	158.200,84 €
CAIBER	147.676,88 €
BIOBANK	109.801,44 €
CIBER	5.347,00 €

The amounts in the Table above reflect the incomes reported in IMIBIC's Income Statement according to the level of execution of every project, clinical trial or service provided instead of reflecting the annual allocation for the whole project for 2012.

Finally, funds for IMIBIC operating expenses –which amounts to a total of €235,889.98– came from the contributions made by the Andalusian Department of Health, the Andalusian Government's Department of Economy, Innovation and Science and the University of Cordoba. The funding available significantly decreased with respect to previous years. Specifically, funding requirements of operating expenses decreased by 29% with respect to 2011.

Additionally, the Andalusian Regional Government's Department of Health granted €300,000 for the acquisition of scientific equipment.

03

Goals achieved in 2012



Below are shown the goals accomplished in 2012:

**1.- Fostering the promotion and / or participation of IMIBIC in international research activities and increasing the number of European proposals submitted.**

To this end, our project managers intensified their activity at international level. A total of seven international projects were proposed and three informational sessions on international research projects were held.

**2.- Promoting the transfer of knowledge and translational research.**

The Innovation Management Unit obtained the accreditation as Technology Transfer Office (OTRI), which is a recognition to the work made at this department. This accreditation has also given visibility to the OTRI by the community of researchers at IMIBIC. The OTRI had an intense activity in 2012, which resulted in the obtaining of four licences for the commercial exploitation of research results by several IMIBIC research groups. The number of registrations of industrial property titles increased to 14, and two new spin-offs were set up.

**3.- Developing institutional relationships with relevant national and international agents, according to the goals of the Partnership Plan.**

During 2012, 43% of papers published by our researchers were made in collaboration with national research groups, while 39% were made with international research groups. In the framework of international partnerships, a total of seven new collaboration agreements were set up with research institutions.

**4.- Acquiring new equipment and infrastructures to complete the Facility and Support Service Development Plan.**

During the annuity, a special attention has been paid on the selection of the equipment that best fits our scientific and technical needs. Such equipment is acquired with funds from the FEDER Fund, which are invested in the main UCAIB's areas, such as Proteomics, Microscopy and Cytomics, Animal Housing and Isotopes, among other. The works in the new facilities are expected to conclude in 2013. In addition, five positions of laboratory support technologist were created and filled through a competitive call conducted by the ISCIII and the Andalusian Regional Government. Thus, five technologists specialized in Research Methodology, Proteo-

mics, Bioinformatics, Isotopes and Experimental Animals joined the IMIBIC in 2012.

**5.- Ensuring IMIBIC's economic sustainability as a long-term project through fund-raising, and achieving a balance between public and private financing.**

A special effort was made in 2012 to increase clinical trial orders and sign more contracts with private companies resulting in an increase in funds from private sources, which currently stand for 25% of IMIBIC's total income. Thanks to the good results obtained, requests for nominal public funds for the operation of IMIBIC for 2013 have decreased by 60%.

**6.- Promoting communication and relationships between the IMIBIC and its researchers to progressively create a sense of belonging to this institution.**

An internal communication policy has been developed to favour communication among research groups through our website, social networks and the newsletter. The II Lección Conmemorativa Maimónides was held in 2012 (a meeting of all IMIBIC research groups to present their work and identify potential synergies and shared points of interest); as well as a range of training activities aimed at researchers (courses, conferences and seminars).

**7.- Revising and improving IMIBIC's Training and Quality Plans**

After a thorough examination, it was decided that the Quality Plan should be changed and a new plan had to be designed basing on the lessons learned from the approval of the first version.

**8.- Implementing a new management by objectives-based model aimed at the UCAIB and Management Unit staff.**

With the aim to results-oriented, a new staff performance evaluation system has been implemented.

**9.- Promoting the image of IMIBIC among patients and in society in general.**

The implementation of IMIBIC's Promotion Plan has continued through a number of activities aimed on achieving its goals. The main actions performed were aimed at society in general, with special focus on patient as-

sociations. IMIBIC's impact on the media in 2012 was: 94 appearances on the press (digital or in paper), three appearances on TV and two appearances on the radio.

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**10.- Promoting new funding streams through the implementation of a "fund-raising" plan.**

A patronage plan has been developed to complement IMIBIC's Promotion Plan, which was approved by the Governing Council and which is starting to yield good results.

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04

Activities of the External  
Scientific Committee





The External Scientific Committee ordinarily was held on December 12th during 2012. In accordance with the regulation of internal operation, the main contents of the meeting were oriented to mandatory issues. Similarly, the External Committee have forwarded their opinions to aimed at advising the management IMIBIC, such as the incorporation of new research groups, such as in the implementation of strategic initiatives, since the incorporation of new research groups, their evaluations, and the new organizational changes.

The External Scientific Committee is composed of the following members:

- **Ana Aranda.** CSIC Research Professor, “Alberto Sols” Institute of Biomedical Research and Institutional Coordinator of CSIC in the Community of Madrid.
- **Lina Badimon.** Head of the Cardiovascular Research Center (CSIC-ICCC) Institut Català de Ciències Cardiovasculars Hospital de la Santa Creu I Sant Pau.
- **Carlos Diéguez.** Director, Center for Medical Research (CIMUS), University of Santiago.
- **Jesús Egido.** Head of Nephrology and Hypertension and Head of the Renal and Vascular Pathology Laboratory at the Jiménez Díaz Foundation, and Professor of Medicine at the Autonomous University of Madrid.
- **Miguel Ángel Gasull.** Head of the Institute for Research in Health Sciences at the Germans Trias I Pujol Foundation.
- **Hubert Vaudry.** Head of the Institut Fédératif de Recherches sur les Peptides Multidisciplinaires (IFRMP 23) and of the International Associated Laboratory Samuel de Champlain. Université de Rouen (France).
- **Emilio Muñoz.** Research Professor “ad honorem” of the CSIC and President of the ASEBIO Scientific Committee.
- **José María Ordovás.** Head of the Nutrition and Genomics Laboratory at the Human Nutrition Research Center on Aging, Tufts University, Boston (USA).
- **Francisco Sánchez Madrid.** Professor of Immunology at the Autonomous University of Madrid and Scientific Director of the Princesa Research Institute, Princesa’s University Hospital (Madrid).
- **Antonio Vidal Puig.** Professor of Molecular Nutrition and Metabolism, Honorary Consultant of Metabolic Medicine, Scientific Director of Cambridge Phenomics Center, University of Cambridge, Metabolic Research Laboratories, Institute of Metabolic Science (United Kingdom).



05

Participation in Networks,  
RETICS, and CIBER



IMIBIC researchers are involved in a range of strategic initiatives coordinated by the Carlos III Health Institute (ISCIII) and participate in its Research Partnership Network program either through the Thematic Networks for Health Research Partnerships (RETICS, in Spanish) and the Biomedical Research Networking Center (CIBER, in Spanish).

In fact, of the 33 groups integrated in the IMIBIC, 18 participate in partnership programs related to different ISCIII strategic initiatives, namely: 13 groups are involved in 11 RETICS, furthermore, the IMIBIC is involved in the ISCIII Biobank Network and –through it– in the State Biobanks Platform. Additionally, 5 groups are involved in 2 CIBER and we have also become part of the CAIBER, with the node attached to the University Hospital Reina Sofía in Córdoba. There are 23 groups involved in the Andalusian Plan for Research, Development & Innovation (PAIDI Programme).

This participation is listed below:

### RETICs Programme

Some of our researchers lead the following network nodes:

Name of the Network	Head Scientist
AIDS Research Network (RIS)	Eduardo Muñoz Blanco
Thematic Network of Research Partnerships on Aging-Frailty (RETICEF)	José Manuel Quesada Gómez
Renal Research Network (REINREN)	Pedro Aljama García
Spanish Network for Research on Infectious Diseases (REIPI)	Julián de la Torre Cisneros
Network of Hospital Biobanks	Manuel Medina Pérez
Cooperative Research Thematic Network on Cancer (RETICC)	Enrique Aranda Aguilar

Other cooperative networks:

Name of the Network	Collaborating Researcher
AIDS Research Networks (RIS)	Antonio Rivero Román
AIDS Research Networks (RIS)	José Peña Martínez
Spanish Network for Research in Infectious Pathology (REIPI)	Rafael Solana Lara
Network for Research on Mother-Child Health (RedSAMID)	Mercedes Gil Campos
Research Network on Preventive and Health Promotion in Primary Care (RedIAPP)	Luis Ángel Pérula de Torres

Other research networks:

Name of the Network	Head Scientist
Spanish Society for Rheumatology (REGISPONSER)	Eduardo Collantes Estévez
Spanish Myelodysplastic Syndrome Registry (RESMD)	Joaquín Sánchez García*
Observational Immune Tolerance Induction research program (OBSITI)	Francisco Velasco Gimena*

\*Members of the same group

## CIBERs Programme

Our researchers lead the following CIBERs' nodes:

CIBER	Head Scientist
CIBER on Obesity and Nutrition (CIBERobn)	José López Miranda
CIBER on Obesity and Nutrition (CIBERobn)	Manuel Tena Sempere
CIBER on Liver and Digestive Diseases (CIBERehd)	Manuel de la Mata García
CAIBER Biomedical Research Centers Network Consortium	Joaquín Alanís López

Additionally, our researchers are members of the following CIBERs:

CIBER	Collaborating Researcher
CIBER Obesity and Nutrition (CIBERobn)	Francisco Gracia Navarro
CIBER Obesity and Nutrition (CIBERobn)	M <sup>a</sup> Mar Malagón Poyato

## PAIDI Groups

Many IMIBIC researchers belong to or lead groups formed under the Andalusian Plan for Research, Development and Innovation (PAIDI, in Spanish).

- BIO-139. Principal Researcher: Justo P. Castaño Fuentes
- BIO 208. Principal Researcher: José Suárez de Lezo Cruz Conde
- BIO 216. Principal Researcher: José Antonio Bárcena Ruiz
- BIO-272. Principal Researcher: Manuel Ruiz Rubio
- BIO-301. Principal Researcher: Rafael Rodríguez Ariza
- BIO-304. Principal Researcher: Eduardo Muñoz Blanco
- BIO-310. Principal Researcher: Manuel Tena Sempere
- CTS-179 Principal Researcher: Escolástico Aguilera Tejero
- CTS 260 Principal Researcher: Pedro Aljama García
- CTS-208. Principal Researcher: José Peña Martínez
- CTS-212. Principal Researcher: Francisco Pérez Jiménez
- CTS-234. Principal Researcher: Enrique Aranda Aguilar
- CTS-273. Principal Researcher: Manuel de la Mata García
- CTS-413. Principal Researcher: José Manuel Quesada Gómez
- CTS-452. Principal Researcher: Roger Ruiz Moral
- CTS-525. Principal Researcher: José López Miranda
- CTS-651. Principal Researcher: Juan Antonio Paniagua González
- CTS-620. Principal Researcher: Antonio Torres Gómez
- CTS-624. Principal Researcher: Isaac Túnez Fiñana
- CTS-647. Principal Researcher: Julián Carlos de la Torre Cisneros
- CTS-666. Principal Researcher: Aurora Rodríguez Borrego
- CTS-039. Principal Researcher: María Mercedes Gil Campos
- FQM-227. Principal Researcher: María Dolores Luque de Castro
- TIC-161. Principal Researcher: Rafael Medina Carnicer

06

Training Activities



## 6.1 Introduction

The IMIBIC considers scientific training a basic, essential instrument for achieving its scientific objectives; accordingly, it has launched a plan aimed at promoting knowledge transfer and enhancing the current lines of research.

The training coordinator is Prof. Dr. Eduardo Collantes Estevez.

The IMIBIC leads a unique PhD Programme in Biomedical Research which includes a PhD Programme in Nutrition and Research Methods in Health Sciences.

This new PhD Programme in Biomedicine, coordinated by Prof. Dr. Francisco Gracia Navarro, provides advanced training to specialized personnel, stimulates teaching and research, and promotes professional qualification in the field of biomedical sciences.



Prof. Dr. Eduardo Collantes Estévez



Prof. Dr. Francisco Gracia Navarro

## 6.2 Training Activities

The following sections include the research training activities carried out during 2012.

### 6.2.1 Masters and PhD programs

The three Master's Degree programmes in the field of biomedicine which academic directors are members of IMIBIC are listed below:

#### - Translational Biomedical Research

Academic Director: **Prof. Dr. Francisco Gracia Navarro**

Website: <http://www.uco.es/estudios/idep/masteres/investigacion-biomedica-traslacional>

#### - Research Methods in Health Sciences

Academic Director: **Prof. Dr. Eduardo Collantes Estévez**

Website: <http://www.uco.es/estudios/idep/masteres/metodologia-investigacion-ciencias-de-la-salud>

#### - Nutrition and Metabolism (with Quality Label awarded by ANECA)

Academic Director: **Prof. Dr. Francisco Pérez Jiménez**

Website: <http://www.uco.es/estudios/idep/masteres/nutricion-metabolismo>

During the 2012-2013 has been continued with the **Phd program in biomedicine** initiated in the previous year, in addition is maintained during a course more the **Phd Program on Research Methodology in Health Sciences** with 14 lines of research.

The **PhD Programme in Biomedicine** will host nearly all the IMIBIC PhD candidates (Website: <http://www.uco.es/idep/doctorado/programas/biomedicina>).

The 30 registered lines of research are listed below:

**1. Food and Health**

Research Coordinator: MANUEL ÁNGEL AMARO LÓPEZ

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**2. Alterations in Cellular Bioenergetics due to Caloric Restriction and Dietary Antioxidants**

Research Coordinator: JOSÉ MANUEL VILLALBA MONTORO

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**3. Redox Alterations and Pathologies of the Mitochondrial Proteome**

Research Coordinator: JOSÉ ANTONIO BÁRCENA RUIZ (Head of Research of IMIBIC group A-02 )

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**4. Applications of Artificial Vision in Health Sciences**

Research Coordinator: RAFAEL MEDINA CARNICER (Coordinator of IMIBIC Area D and Head of Research of the D-01 group)

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**5. Pathobiological Aspects of Allergic Diseases**

Research Coordinator: FRANCISCO ANTONIO GUERRA PASADAS

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**6. Clinical and Molecular Basis of Cancer Surgery**

Research Coordinator: SEBASTIÁN RUFÍAN PEÑA (Researcher of IMIBIC Group C-05 ).

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**7. Clinical and Molecular Bases of Digestive and Liver Diseases**

Research Coordinator: PEDRO ANTONIO LÓPEZ CILLERO (Researcher of IMIBIC Group C-05).

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**8. Biology of Normal and Leukemic Hematopoiesis. Bone Marrow Transplantation. Biology and Therapeutic Applications of Stem Cells in Bone Marrow**

Research Coordinator: ANTONIO TORRES GÓMEZ (Head of Research of IMIBIC Group C-03 )

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**9. Nutritional Biomodulation**

Research Coordinator: FRANCISCO PÉREZ JIMÉNEZ (Scientific Director and Head of Research of IMIBIC Group B-02)

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**10. Nursing Care**

Research Coordinator: M<sup>a</sup> AURORA RODRÍGUEZ BORREGO (Associated Researcher of IMIBIC Group Aas-06 )

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**11. Dermatoses and its Association with Organs and Systems**

Research Coordinator: JOSÉ CARLOS MORENO GIMÉNEZ

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**12. Diagnostic Imaging and Radiotherapy**

Research Coordinator: MARÍA MARTÍNEZ PAREDES

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**13. Endocrinology, Metabolism and Diabetes**

Research Coordinator: PEDRO BENITO LÓPEZ (Head of Research of the associated group Bas-02)

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**14. Systemic Autoimmune and Chronic Inflammatory Diseases**

Research Coordinator: ROSARIO LÓPEZ PEDRERA (Head of Research of IBIMIC Group A-07)

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**15. Pathophysiology of Adipose Tissue: Obesity and Diabetes**

Research Coordinator: MARIA DEL MAR MALAGÓN POYATO (Head of Research of IBIMIC Group B-06)

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**16. Genetics and Human Behaviour**

Research Coordinator: MANUEL RUIZ RUBIO (Head of Research of IMIBIC Group D-03 )

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**17. Identification of Protein Candidates for Vaccines against Pathogens with Proteomic Strategies**

Research Coordinator: MANUEL JOSÉ RODRÍGUEZ ORTEGA (Head of Research of IMIBIC Group DE-06 )

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**18. Inflammation, Cancer and Lung Transplants**

Research Coordinator: EDUARDO MUÑOZ BLANCO (Head of Research of IMIBIC Group A-05 )

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**19. Immunobiology of NK Cells**

Research Coordinator: JOSE PEÑA MARTINEZ (Head of Research of IMIBIC Group A-01 )

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## **20. Translational Research in Infectious diseases**

Research Coordinator: JULIÁN DE LA TORRE CISNEROS (Head of Research of IMIBIC Group A-04 )

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## **21. Cellular and molecular mechanisms of Inflammation and Endothelial Damage in Renal Failure**

Research Coordinator: PEDRO ALJAMA GARCÍA (Head of Research of IMIBIC Group A-09 )

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## **22. Clinical Microbiology**

Research Coordinator: MANUEL CASAL ROMÁN

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## **23. Neuroendocrinology of Energy Balance, Puberty and Reproductive Function**

Research Coordinator: MANUEL TENA SEMPERE (Head of Research of IMIBIC Group B-03 )

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## **24. Neuroplasticity and Oxidative Stress**

Research Coordinator: ISAAC TÚNEZ FIÑANA (Head of Research of IMIBIC Group BE-05 )

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## **25. Nutrigenomics, Interaction of Genes with the Environment**

Research Coordinator: JOSÉ LÓPEZ MIRANDA (Head of Research of IMIBIC Group B-02 )

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## **26. Pediatrics or Social Pediatrics. Experimental Medicine**

Research Coordinator: RAMÓN CAÑETE ESTRADA (Associated Researcher of IMIBIC Group Bas-03)

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## **27. Pediatrics: Research in Specific Areas**

Research Coordinator: JUAN LUIS PÉREZ NAVERO (Researcher of Group BE-07 )

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## **28. Diagnostic Procedures, Interventional and Therapeutic Radiology and Rehabilitation**

Research Coordinator: ANTONIO CANO SÁNCHEZ (Researcher of Group BE-04 )

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## **29. Cellular and Molecular Regulation of Hormone Secretion and Cancer**

Research Coordinator: JUSTO PASTOR CASTAÑO FUENTES (Head of Research of IMIBIC Group B-01 )

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## **30. Targeted Therapy in Cancer: Identification of Molecular Mechanisms of Resistance in a Suitable Selection of Patients and a Rational Use of Combined Therapy**

Research Coordinator: ENRIQUE ARANDA AGUILAR (Head of Research of IMIBIC Group A-08 )

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The areas of research of the **PhD Programme in Research Methods in Health Sciences** (Coordinator: Prof. Dr. Eduardo Collantes Estevez) are as follows:

### **1. Histofunctional Aspects of Exercise and Reproduction**

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### **2. Applied Science in Physical Activity and Sports (Exercise and Health)**

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### **3. Epidemiology, Public Health and Mental Health**

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### **4. Natural History of Cardiac Intervention**

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### **5. AIDS Immunology**

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### **6. Qualitative Research**

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### **7. Research into Sciences of Physical Activity and Sport**

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### **8. Occupational Medicine, Environmental Health and Occupational Epidemiology**

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### **9. Family and Community Medicine**

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### **10. Forensic Medicine**

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### **11. Neurochemistry and Neuroendocrinology**

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### **12. Cellular and Molecular Pathology of Cancer and Related Diseases**

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### 13. Musculoskeletal Pathology

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### 14. Promotion and Prevention in Women's Health

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Website: <http://www.uco.es/idep/doctorado/>

#### 6.2.2. Specific training activities

Training courses on Research Methodology or any other Biomedical Science-related area.

##### 6.2.2.1. Courses

Training activities organized by IMIBIC

Type of Activity	Name of the Activity	Duracton* (hours)
CONFERENCE	II Lección Maimonides	3
CONFERENCE	III Jornada de Jóvenes Investigadores	10
LECTURE	Strategic scenario of research on health sciences and technologies	2
WORKSHOP	Qualitative research: understanding nursing care	5
WORKSHOP	An aging society: approaches to aging research	5
COURSE	Basic bioinformatics	40
COURSE	Research methodology in health sciences Development of a protocol and dissemination of research	24
COURSE	The everyday and the imaginary in the process of health. Illness: ways of living, ways of caring in nursing	15

Training activities in which IMIBIC takes part

Type of Activity	Name of the Activity	Duracton* (hours)
CONFERENCE	Training conference on European funding opportunities for R&D actions in the field of health sciences	2
CONFERENCE	Training conference by the Centro Andaluz de Nanomedicina y Biotecnología (BIONAND)	2
COURSE	Introduction to the Bayesian inference Theory and applications in Health Sciences	16
WORKSHOP	European funding opportunities in R&D through 2013 Health and HORIZON 2020 and keys to the preparation of Marie Curie proposals	5

### 6.2.2.2. IMIBIC Seminar

Date	Lecturer	Institution	Name
26/01/2012	Eva Delpón	Dept. of Pharmacology Faculty of Medicine Universidad Complutense de Madrid.	Cardiac ion channels: from cell to patient
02/02/2012	Manuel Jesús Muñoz Ruiz	Pablo de Olavide, Seville.	Animal model for the study of type III galactosemia
09/02/2012	Placido Navas	Andalusian Center of Development Biology (CABD), Pablo Olavide University, Seville.	Coenzyme Q10 Deficiency Syndrome
16/02/2012	Mercedes Robledo	Hereditary Endocrine Cancer Group of the National Oncological Research Center (CNIO)	Exome sequencing identification of a new gene related with hereditary pheochromocytoma. How many more are hidden?
23/02/2012	Ana Aranda	Spanish Council for Scientific Research (CSIC)	The role of thyroid hormone receptors in cell proliferation, cell transformation and cancer
01/03/2012	Emilio Alba	University of Malaga Virgen de la Victoria Hospital	Angiogenesis and Cancer
08/03/2012	M <sup>a</sup> José Serrano	Biodynamics of Circulating Tumor Cells of the GENYO Center	Stem Cells and Cancer
15/03/2012	Jordi Gómez	Institute of Parasitology and Biomedicine "López Neyra"	RNA archaeology applied to the study of hepatitis C virus
29/03/2012	Edgardo Carosella	Hospital Saint-Louis (Paris).	HLA and identity
26/04/2012	Augusto Villanueva	Clinic Hospital of Barcelona	Personalized treatment of hepatocellular carcinoma
03/05/2012	Jose Antonio Muñoz	Clinical University Hospital Granada	PARP inhibitors and hepatocellular carcinoma
10/05/2012	Pedro A. Lazo	Institute of Molecular and Cellular of Cancer. CSIC-University of Salamanca	VRK1, a kinase of the chromatin regulating response to gene damage
17/05/2012	Rocío Sancho	Cancer Research UK. London Research Institute.	Fbw7 ubiquitin ligase in cell fate decisions and tumorigenesis.
18/05/2012	Antonio Vidal	Metabolic Research Laboratory, University of Cambridge	Brown fat as a therapy for obesity and metabolic syndrome
07/06/2012	Carlos Cervera	Division of Infectious Diseases. Clinic Hospital of Barcelona	Immunologic risk factors related with infection with cytomegalovirus
18/06/2012	Nicolás Olea	Department of Radiology, Radiotherapy and Oncology, University of Granada	Endocrine disruption and the precautionary principle
23/10/2012	Miguel López	NeurObesity Group; Department of Physiology; Faculty of Medicine-CIMUS; Santiago de Compostela University	Central action of thyroid hormones in the regulation of the energy balance
26/10/2012	Marcus Flather	Cardiology and Medical School. Norfolk and Norwich University Hospital and University of East Anglia	Clinical trials in the elderly: challenges and benefits
15/11/2012	Luis Carlos Silva Aycaguer	Universidad de Ciencias Médicas de La Habana	Rudiments of an alternative paradigm to classical statistical inference
22/11/2012	Toni Andreu	Carlos III Health Institute	Strategic scenario of research on health sciences and technologies
20/12/2012	Ruben Nogueiras Pozo	Santiago de Compostela University	New mechanisms of action ghrelin: Implications of body weight control

### 6.2.2.3. Conferences Organized by IMIBIC

#### III Jornadas de jóvenes investigadores del IMIBIC.

Date: 16th April. Organizing body: IMIBIC. UCO. ANDALUSIAN REGIONAL GOVERNMENT

##### Schedule

#### 9:00- 9:30. Registration and poster hanging

#### 9:30-10:00. Presentation

**Ms. Carmen Prieto Sánchez**

Provincial Delegate of Economy, Innovation and Science. Córdoba

**Ms. María Isabel Baena Parejo**

Provincial Delegate of Health. Córdoba

**Prof. Dr. Justo Castaño Fuentes.**

Vice-Chancellor of Scientific Policy at the University of Córdoba.

**Dr. Mr. José Manuel Aranda Lara.**

Managing Director of the Reina Sofía University Hospital

**Prof. Dr. Francisco Pérez Jiménez**

IMIBIC's Scientific Director

#### 10:00-12:30. Session 1. Cardiovascular Disease. Metabolic Syndrome and Obesity.

**10:00-10:15**

Potential roles of MicroRNAs in the Regulation of Puberty? Expression profiles of let-7 miRNAs and Lin28 in rat hypothalamus during postnatal maturation and in preclinical models of altered puberty.

**María Manfredi Lozano**

**10:15-10:30**

Analysis of the intestinal microbiota by molecular techniques of genetic fingerprints, T-RFLP and ARISA, in patients with and without metabolic syndrome.

**Carmen María Haro Mariscal**

**10:30-10:45**

Adiponectin receptor Homo- or Heterodimerization determines the cellular response to Adiponectin.

**Farid Almabouada**

**10:45-11:00**

Effects of dietary fat quality and quantity on post-prandial expression of endoplasmic reticulum stress-related genes in adipose tissue of metabolic syndrome individuals.

**María Eugenia Meneses Álvarez.**

**11:00-11:15**

Metabolomic study of coronary lesions.

**Monica Calderón Santiago**

#### 11:15-11:45. Coffee break. Poster session.

**11:45-12:00**

A Clinical Prediction Model to Estimate Risk for 30-Day Adverse Events in Emergency Department Patients With Symptomatic Atrial Fibrillation.

**Joaquin Valle Alonso**

**12:00-12:15**

Stimulatory role of Neurokinin B in the central control of female puberty and its modulation by metabolic status.

**Francisco Ruiz Pina**

**12:15-12:30**

Suitable fitness and physical activity in prepubertal children reduced risk of oxidative stress.

**Francisco Jesús Llorente Cantarero.**

#### 12:30-13:00 .Session 2. Liver and digestive diseases Renal and nephrourological diseases

**12:30-12:45**

Predictors of early graft survival after paediatric liver transplantation.

**Ruben Ciria Bru**

**12:45-13:00**

Mesenchymal stem cell-derived molecules improve hepatic regeneration and prevent hepatocellular death through NF-kB activation.

**Carmen Herencia Bellido**

#### 13:00-14:00. Genomics applied to type 2 diabetes or how to surf a tsunami

**Dr. José Carlos Florez**

Prof. of the University of Harvard

#### 14:00-16:00. Lunch

**16:00-17:15. Session 3. Oncology and Oncohematology**

**16:00-16:15**

Cross-regulation between SIAH2 E3 ubiquitin ligase and checkpoint Kinase 2.

**Carmen García Limones.**

**16:15-16:30**

Effects of Dopastatin (BIM-23A760), a Somatostatin-Dopamine chimeric molecule, on several functional parameters of pituitary adenomas in vitro.

**Alejandro Ibáñez Costa**

**16:30-16:45**

Maintenance of S-nitrosothiol homeostasis plays an important role in growth suppression of estrogen receptor positive breast tumors.

**Amanda Cañas Rodríguez**

**16:45-17:00**

DME, a plant DNA demethylase that modifies the human epigenome.

**Teresa Morales Ruiz**

**17:00-17:15**

High grade brain Astrocytomas: Health results.

**Eleonor Rivin del Campo**

**17:15-17:45 . Poster session.**

**17:45-19:00. Session 4. Chronic inflammatory and infectious diseases Senescence.**

**17:45-18:00**

Effect of the endocannabinoid N-arachidonoyl-dopamine (NADA) in the hypoxia response pathway.

**Rafael Soler Torronteras**

**18:00-18:15**

Mitochondrial Dysfunction in Monocytes from Antiphospholipid Syndrome Patients: Implications in the Pathogenesis of the Disease and Effects of Coenzyme Q Treatment.

**Carlos Pérez Sánchez**

**18:15-18:30**

Characterization of membrane vesicles of Streptococcus pneumonia.

**Alfonso Olaya Abril**

**18:30-18:45**

Anti-atherosclerotic effect of klotho in endothelial adherence induced by Uremia.

**Carlos Luna Ruiz**

**18:45-19:00**

Human neuroligin-1, a neuronal synapse membrane adhesion protein involved in neurological disorders, is functional modulating the locomotory dopaminergic and serotonergic pathways of *Caenorhabditis elegans*.

**Patricia González Izquierdo**

**19:00-19:30. Awards and closing ceremony.**

**Mr. Sr. Cesáreo García Poyatos**

President of the College of Physicians, Córdoba.

**M<sup>a</sup> del Carmen Parias Muñoz**

**Prof. Dr. Francisco Pérez Jiménez**

IMIBIC's Scientific Director

**Prof. Dr. Eduardo Collantes Estévez**

Training Coordinator at IMIBIC

**Mr. José Miguel Guzmán de Damas**

IMIBIC Manager

## Training conference on European funding opportunities for R&D actions in the field of health sciences

Date: 3rd May. Organizing body: IMIBIC. Progress and Health Foundation

### Schedule

#### 12:00-12:05 Presentation

**Esther Guirado Luna**, Department of International Projects of the Andalusia Health Care System. Department of Resource Development, Progress and Health Foundation

**Virginia Nieto Guerrero**, Head of the Department of International Projects of the SSPA, Area of Resource Development, Progress and Health Foundation

#### 12:05 – 13:00 Characteristics of participation in European Programs

**Virginia Nieto Guerrero**, Head of the Department of International Projects of the SSPA, Area of Resource Development, Progress and Health Foundation

#### 13:00 -14:00 Analysis of Calls

Projects:

##### **Competitiveness and Innovation Program**

7th R&D Framework Program  
Initiative of Innovative Drugs  
Ambient-Assisted Life Program  
NIH

Networks:

##### **COST Actions**

Facilities:

##### **Access to European facilities**

Human Resources:

##### **7th Framework Program - People and Ideas Other opportunities: Euraxess**

**Miriam Cruzado**, FIBICO Head of the Research Management Area

## 2nd IMIBIC Lección conmemorativa Maimónides and award ceremony 2012

Date: 13rd December. Organizing body: IMIBIC. UCO

### Schedule

#### 11:00 Opening ceremony

#### 11:10 Award to the best master project in the field of biomedicine

Cell and molecular mechanisms in the selective action of desmopressin on tumor corticotropes: implications in the diagnosis of the Cushing disease.

**Mr. Alejandro Ibáñez Costa**

#### 11:20 Award to the best master project in the field of biomedicine

Molecular fingerprinting of the intestinal microbiota, T-RFLP and ARISA in patients with and without metabolic syndrome.

**Ms. Carmen María Haro Mariscal**

#### 11:30 Award to the collaborative publication which best recognises the basic-clinical interaction

Nitric Oxide Mimics Transcriptional and Post-Translational Regulation During Alpha-Tocopherol Cytoprotection Against Glycochenodeoxycholate- Induced Cell Death In Hepatocytes.

**Dr. Raúl González Ojeda**

#### 11:40 Award to the best collaborative publication with several international research groups

Direct And Indirect Effects Of Parathyroid Hormone On Circulating Levels Of Fibroblast Growth Factor 23 In Vivo.

**Dr. M<sup>a</sup> Encarnación Rodríguez Ortiz**

#### 11:50 Award to the patent with the greatest potential to improve health problems

Tricyclic lactones for treatment of Cancer.

**Dr. Eduardo Muñoz Blanco**

#### 12:00 Award to the most relevant scientific paper (Accésit)

Global Effects Of Fluvastatin On The Prothrombotic Status Of Patients With Antiphospholipid Syndrome.

**Dr. Rosario López Pedrera**

#### 12:00 Award to the most relevant scientific paper (Accésit)

Long-Term Outcome Of Patients With Isolated Thin Discrete Subaortic Stenosis Treated By Balloon Dilatation: A 25-Year Study.

**Dr. José Suárez De Lezo Cruz-Conde**

#### 12:30 LECCIÓN MAIMÓNIDES

New intravascular surveillance and intercellular communication in the immunological response

**Prof. Dr. Francisco Sánchez Madrid**

#### 13:30 Award and closing ceremony.

Award to the most relevant press release to the IMIBIC

#### 14:30 Cocktail

## 6.3. Results of training activities

### 6.3.1. Doctoral Theses

Below are the 24 theses presented in 2012 and supervised by IMIBIC researchers.

PhD student	Title of Theses	Director of the Theses
María Luisa Agüera Morales	Influence of time of transplanted and early renal graft function on middle-and long-term results of renal transplan	Pedro Aljama García
Antonio María Delgado Rojano	Analytical platforms in metabolomics and applications on the study of resistance-sensitivity to herbicides	Maria Dolores Luque de Castro
Beatriz Álvarez Sánchez	New analytical platforms in metabolomics	Maria Dolores Luque de Castro
Beatriz Santiago Agredano	Evaluation of recent histological and prognostic factors in renal carcinoma	Antonio López Beltran
Juan Criado García	R353Q Polymorphism of VII factor and cardiovascular risk in patients with family hypercholesterolemia	Jose Lopez Miranda
Nieves Delgado Casado	Influence of Mediterranean nutrition supplemented with coenzyme 10 on lipid parameters, oxidative stress and age-associated endothelial dysfunction	Jose Lopez Miranda
Antonia Díaz Moreno	Photoperiods and oxidative stress: Function of endogenous melatonin and leptin	Isaac Túnez Fiñana
Enrique Martín Rioboó	High blood pressure and comorbidities in Andalusia Study on the prevalence of left ventricular hypertrophy, AF and other cardiovascular alterations in patients with HBP in Andalusia	Luis Angel Pérula De Torres
Fatima Guerrero Pavón	Inflammation-associated with vascular calcification	Escolástico Aguilera Tejero
María Carmen Fernández Marín	Study on oxidative stress and endothelial function in patients with obstructive sleep apnea	Jose Lopez Miranda
David García Galiano	Neuropeptide Y-Ergic systems controlling the reproductive function: Analysis of the role of Kisspeptins Y and Nesfatin-1	Jose Manuel Tena Sempere
Ana Isabel Jimenez Morales	Effect of acute intake of virgin olive oil with high phenol content on the genic expression and on endothelial dysfunction in patients with high cardiovascular risk	Francisco Perez Jimenez
Julia Carrasco Valiente	Protective role of CoQ10 in renal damage associated with urinary tract calculi	Javier Padillo Ruiz
M <sup>a</sup> de las Nieves López De Lerma-Extremera	Analytical and antioxidant characterization of Pedro Ximenez and Tempranillo grapes during their raisining Enological potential of dried Tempranillo grapes	José Peinado Peinado
M <sup>a</sup> Isabel Martínez Macías	Identification of proteins involved in an active DNA demethylation pathway in Arabidopsis thaliana	Teresa Roldán Arjona
Mara Isabel Orozco Solano	Development of global and specific analytical platforms in vegetal and clinical metabolomics and in nutrimental metabolomics	Maria Dolores Luque de Castro
Enrique Martin Rioboo	Study on the prevalence of left ventricular hypertrophy, AF and other cardiovascular alterations in patients with HBP in Andalusia	Jose Lopez Miranda
Maria Eugenia Meneses Alvares	Comparative effect of a diet rich in monounsaturated fat on adipose tissue dysfunction in patients with metabolic syndrome in postprandial state	Jose Lopez Miranda

Milad El Riachy	Genetic variability and heredity of olive oil phenol compounds	Feliciano Priego Capote
Maria Victoria Noci Sánchez	Endothelial damage in obese patients as a response to surgical stress	Julia Carracedo Añon
María Ortiz Espejo	Cardiovascular, inflammation and oxidative damage risk assessment in children with extrauterine growth retardation	Maria Mercedes Gil Campos
Moisés Pérez Aguilera	Modulation By Post-Translational Modifications Of Kinases Implied In Genotoxic Stress	Eduardo Muñoz Blanco
Aleyda Pérez Herrera	Comparative effect of different olive oil varieties used for frying on the postprandial inflammatory response	Francisco Perez Jimenez
Amparo Valverde Martínez	Influence of antiangiogenic chemotherapy on liver regeneration	Francisco Javier Briceño Delgado

### 6.3.2. Profile of Students Enrolled in our Master Program

Master in	Total students enrolled	No
TRANSLATIONAL BIOMEDICAL RESEARCH	41	PAP = 2 PE = 4 R = 18 O = 17
RESEARCH METHODOLOGY IN HEALTH SCIENCES	40	PAP = 1 PE = 5 R = 31 O = 3
NUTRITION AND METABOLISM	35	PAP = 1 PE = 5 R = 17 O = 12

PAP= Primary Care Staff; PE= Nursing Staff; R= Residents, O= Other categories.

## 6.4. Short professional stays

Over the year 2012, our researchers took part in a number of short professional stays at a range of national and international centres in order to improve their training and favour the sharing of knowledge to promote research. In addition, the IMIBIC has implemented a mobility program for our researchers to visit prestigious international research centers, participate in conferences, establish contact with other research groups. This will allow them to later collaborate in joint projects or prepare longer stays.

Related information is provided below:

Professional Category	Type of Stay	National stay	International Stay
Researchers	Public call	N:2 Total Duration: 14 months	N:2 Total Duration: 7 months
	Other		N: 1 Total Duration: 12 months
	IMIBIC program	N:1 Total Duration: 2 months	N: 1 Total Duration: 1 month
Researchers in training	Public call	N: 1 Total Duration: 0,5 months	N: 3 Total Duration: 20 months
	Other	N:1 Total Duration: 0,5 months	N: 3 Total Duration: 8 months
	IMIBIC program	N:1 Total Duration: 2 months	N:2 Total Duration: 4 months
Postdoc researchers	Public call		N: 5 Total Duration: 39 months
	Other		N: 4 Total Duration: 26 months
	IMIBIC program		N: 1 Total Duration: 1 month

\*IMIBIC program IMIBIC's Incentive Program of Strategic Activities is a comprehensive professional development plan aimed at our researchers.

\*Public calls: Stays funded by public entities.

\*Other IMIBIC-funded stays performed by our researchers.



07

New Equipment Acquired



Over the year 2012, several pieces of equipment were acquired in order to facilitate the work of our researchers. Specifically, the Andalusian Regional Government's Department of Health awarded a €300,000 grant to the IMIBIC for the acquisition of scientific material, as follows:

- 80 ° C deep freezers, liquid nitrogen containers, laminar flow biological safety cabinets, precision balances, safety cabinets and some small laboratory instruments.
- Finally, a set of cages and racks for experimental animals (rats and mice) have been acquired for the animal housing unit of the new IMIBIC headquarters.
- The experimental operating room has been equipped with anesthesia units, infusion therapy units and operating lights.

Additionally, €25,835-worth equipment has been acquired for the different research groups.

The equipment necessary for the washing and sterilization of experimental animals in the new animal housing unit has been acquired with FEDER funds obtained by the University of Córdoba. Specifically, the following instruments have been acquired:

- A 1800L-steam sterilizer autoclave.
- A 200L-steam sterilizer autoclave.
- A triple-door SAS unit for the passing of 6000L-cabinet-type materials
- A triple-door SAS unit for the passing of 200L-cabinet-type materials
- An air shower filter.
- A washing and disinfection unit for cages and racks for experimental animals.

The remaining FEDER funds obtained will be invested in 2013, when the works on the new IMIBIC headquarters end.



08

Results of the IMIBIC's  
Scientific Work.  
Areas and Groups



# AREA A

## Immunology, Inflammation, Oncology and Infectious Diseases

Coordinator: Rafael Solana Lara

- A-01** T and NK Cell Immunosenescence. Antiviral immune response

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- A-02** Oxidative and nitrosative stress in acute and chronic liver disease

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- A-04** Infectious Diseases

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- A-05** Inflammation and Cancer

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- A-07** Systemic Autoimmune and Chronic Inflammatory Diseases of Musculoskeletal System and Connective Tissue

---

- A-08** New Cancer Therapies

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- A-09** Nephrology. Cell Damage in Chronic Inflammation

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- Aas-01** Lung Transplants. Thoracic Neoplasms

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- Aas-06** Comprehensive Nursing Care. Multidisciplinary Perspective

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- Aas-07** Pneumology





## T and NK cell Immunosenescence. Antiviral Immune Response

**Head Researcher:** Rafael Solana Lara. [rsolana@uco.es](mailto:rsolana@uco.es)

Spanish Network for Research Infectious Pathology (REIPI) (Collaborator)

**Co-Head Researcher:** José Peña Martínez

AIDS Research Network (RIS)(Collaborator) PAIDI Group CTS-208

### Scientific Activity

The process of senescence of the immune system in different models: chronological aging, cancer, inflammatory diseases, viral infection and other situations of chronic activation of the immune system. In particular, we analyze the receptors involved in the regulation of cytotoxicity in T (CTL) and NK cells and their ligands in these models, and the role of CMV. We also analyze the immunopathogenesis of HIV infection and the impact that different therapeutic situations have on it as well as the innate immune response in HIV-1 + patients treated with "ex vivo" autologous dendritic cells as part of the protocol of developing a preventive vaccine.

### Keywords

AIDS, HIV-1, HAART, preventive vaccine. Immunosenescence, aging, melanoma, NK cells, NKT cells, NK receptors, CMV, cytotoxic T lymphocytes (CTL).

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Solana	Lara	Rafael	HR	Coordinator of Area A
Peña	Martínez	José	CO-HR	Researcher
Alonso	Díaz	Corona	R	Researcher
Campos	Fernández	Carmen	R	Researcher
González	Fernández	Rafael	R	Researcher
Manzanares	Martín	Bárbara	R	Researcher
Aguado	Álvarez	Rocío	TR	Researcher
Castro	Orgaz	Laura	TR	Researcher
Estévez	Cordero	Orlando	TR	Researcher
Frías	Casas	Mario	TR	Researcher
Molina	Alcaide	Juan Eduardo	TR	Researcher
Navas	Romo	Ana María	TR	Researcher
Pera	Rojas	Alejandra	PDR	Researcher
Velarde	Martínez	M <sup>a</sup> Luisa	AO	Administrative Officer

(\*) HR: Head Researcher, CO-HR: CO-Head Researcher, R: Researcher, TR: Trainee Researcher, PDR: Post-Doctoral Researcher

## Publications

Sanchez-Correa B, Gayoso I, Bergua JM, Casado JG, Morgado S, Solana R, Tarazona R. Decreased expression of DNAM-1 on NK cells from acute myeloid leukemia patients. *Immunology and Cell Biology*. 2012; 90(1):109-115.

IF: 3,661

Peña J, Frias M, Castro-Orgaz L, Gonzalez R, Garcia F, Gallart T, Gatell JM, Plana M. Effects on innate immunity of a therapeutic dendritic cell-based vaccine for HIV-1 infection. *Viral Immunology*. 2012. 25(1);37-44.

IF: 1,966

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IF: 2,546

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## Research Projects

Project Name: Influence of genotype combinations of nk receptors (KIR) and HLA molecules in the progression of HIV-1 infection in different clinical and therapeutic situations (Jose Peña Martinez)

Funding body: Carlos III Health Institute  
File number: 09/0424

Project Name: Effect of age and CMV infection on the multifunctionality of nk cell, invariant NKT cells, NKT-like lymphocytes and cmv specific lymphocytes (Rafael Solana Lara).

Funding body: Carlos III Health Institute  
File number: 09/0723

Project Name: Allogeneic use of ASCs for the systemic treatment of inflammatory diseases: clinical approach to rheumatoid arthritis (Rafael Solana Lara)

Funding body: Spanish Ministry of Economy and Competitiveness  
File number: IPT-010000-2010-40

## Collaboration Agreements

Project Name: Collaboration agreement with Oxoid. Influence of genotype combinations of nk receptors (KIR) and HLA molecules in the progression of HIV-1 infection in different clinical and therapeutic situations (Jose Peña Martinez)

Funding body: Oxoid S.A  
File number: CCB.0009

Project Name: Influence of genotype combinations of nk receptors (KIR) and HLA molecules in the progression of HIV-1 infection in different clinical and therapeutic situations (Jose Peña Martinez)

Funding body: Innogenetics  
File number: CCB.0016

Project Name: Extension of contract: educational web on immunology: [www.inmunologiaenlinea.es](http://www.inmunologiaenlinea.es) (Jose Peña Martinez)

Funding body: Phadia Spain, S.L.  
File number: CCB.UCO0011

Project Name: Agreement with Innogenetics Diagnostica Iberia SI (Jose Peña Martinez)

Funding body: Innogenetics  
File number: CCB.0036



## Oxidative and Nitrosative Stress in Acute and Chronic Liver Disease

**Head Researcher: Manuel de la Mata García.** [hepatoh2hrs.sspa@juntadeandalucia.es](mailto:hepatoh2hrs.sspa@juntadeandalucia.es)

CIBER on Liver and Digestive Diseases (CIBERehd)-PAIDI Group CTS-273

**Co-Head Researcher: Jose Antonio Bárcena Ruiz**

PAIDI Group BIO-216

### Scientific Activity

The members of the research team are divided into the BIO-216 and the STS-273 group –within the Andalusian Research Plan– and the CIBER for liver and digestive diseases (CIBERehd) in the context of a mixed group consisting of a healthcare team made up of hepatologists, surgeons and a biomedical research team of the HURS Research Unit and Department of Biochemistry and Molecular Biology of the UCO with associated teaching activity. Our biomedical research focuses on acute and chronic hepatocellular injury, hepatocarcinoma and liver transplants, with special emphasis on post-translational modifications of the proteome as a consequence of oxidative stress (reactive oxygen species, ROS) and nitrosative stress (reactive nitrogen species, RNS) in eukaryotic cells (hepatocytes and yeasts). The intracellular cytoprotection signal for molecules of various antioxidants (N-acetylcysteine,  $\alpha$ -tocopherol) or cellular redox state regulators (redoxins) have been characterized in models of cellular injury. The mitochondrial dysfunction caused by redox imbalance is at the root of a large number of pathologies. The group of proteins from the family of cellular and mitochondrial redoxinas plays a major part in antioxidant defence, the maintenance of thiol systems and the interaction between reduced glutathione, ROS and RNS. For this purpose, normal and chimeric mutants and recombinant proteins are produced using techniques of molecular biology and in vitro characterization; and (second generation) targeted proteomics are carried out using biochemical analysis techniques.

The group's proven experience in the analysis of post-translational modifications is employed in the identification of biomarkers for hepatocellular carcinoma detection and diagnosis using proteomic analysis tools. In the area of liver transplants, we have identified the cytoprotection mechanisms mediated by cardiotrophin-1 in the preservation injury in liver transplantation developed in experimental animals (rats and "mini-pigs"). In addition, the clinical group is involved in the development of a large number of phase II, III and IV clinical trials in the areas of viral hepatitis (boceprevir), hepatocellular carcinoma (sorafenib), liver cirrhosis (satavaptan), acute liver failure (bioartificial liver, MARS) and liver transplantation (immunosuppression strategies).

## Keywords

Reactive oxygen species, nitric oxide, antioxidants, redoxins, proteomics, apoptosis, necrosis, hepatocytes, yeast, mitochondria, liver cancer, biomarkers, liver transplantation, cirrhosis, viral hepatitis, acute and chronic liver failure.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
De La Mata	García	Manuel	HR	Researcher
Bárcena	Ruiz	José Antonio	CO-HR	Researcher
Montero	Álvarez	José Luis	R	Researcher
Aguilar	Melero	Patricia	R	Researcher
Barrera	Baena	Pilar	R	Researcher
Costán	Rodero	Guadalupe	R	Researcher
Fraga	Rivas	Enrique	R	Researcher
García	Sánchez	Valle	R	Researcher
Gómez	Camacho	Federico	R	Researcher
Martínez	Galisteo	Emilia	R	Researcher
Núñez	García	Francisca	R	Researcher
Padilla	Peña	Alicia	R	Researcher
Peinado	Peinado	José	R	Researcher
Poyato	González	Antonio	R	Researcher
González	Rubio	Sandra	TR	Researcher
Jurado	García	Juan	TR	Researcher
Linares	Luna	Clara	TR	Researcher
Vida	Pérez	Luis	TR	Researcher
González	Ojeda	Raúl	PDR	Researcher
Ferrín	Sánchez	Gustavo	PDR	Researcher
Mcdonagh	Null	Brian	PDR	Researcher

(\*)HR: Head Researcher; CO-HR:Co-Head Researcher; R: Researcher; TR: Trainee Researcher; PDR: Post-Doctoral Researcher

## Publications

Benitez Cantero JM, Costan Rodero G, Montero Alvarez JL, Ayllon Teran MD, Naveas Polo C, Fraga Rivas E, Barrera Baena P, Poyato Gonzalez A, Lopez Cillero P, Luque Molina A, De la Mata Garcia M. Biliary Complications After Liver Transplantation Using Side-to-Side Choledochocholedochostomy Reconstruction With or Without T-Tube. *Transplantation Proceedings*. 2012; 44(7);2098-2099. IF: 1.005

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## Research Projects

Project Name: Redoxins, mitochondria and cell regulation by posttranslational thiol modification of the proteome. Physiological implications. (José Antonio Bárcena Ruiz)  
Funding body: MICINN  
File number: BFU2009-08004

Project Name: Inhibition of the mTOR pathway in liver transplantation for hepatocellular carcinoma and its impact on disease recurrence (Manuel de la Mata García)  
Funding body: Spanish Ministry of Science and Innovation  
File number: PI11/O2867

Project Name: A multicenter, randomized, placebo-controlled, double-blind phase IV study to assess the efficacy and safety of sorafenib in patients with advanced liver cell cancer with radiological progression (José Luis Montero Álvarez)  
Funding body: Spanish Ministry of Health, Social Services and Equality  
File number: EC2011-185

Project Name: Modulation of the thiol proteome by redoxins: mechanisms and implications in iron metabolism, mitochondrial function and apoptosis (José Antonio Bárcena Ruiz)  
Funding body: Spanish Ministry of Economy and Competitiveness  
File number: BFU2012-32056  
2013 Annuity

Project Name: Functional validation of snp rs6105269 in Crohn disease (María Del Valle García Sánchez)  
Funding body: Regional Ministry of Health and Social Welfare  
File number: PI-0485-2012  
2013 Annuity

Project Name: Functional validation of snp rs6105269 in Crohn disease (María Del Valle García Sánchez)  
Funding body: Carlos III Health Institute  
File Number: PI12/O2091  
2013 Annuity

## Collaboration Agreements

Project Name: Collaboration Agreement between Ciberehd and institution (Manuel de la Mata García)  
Funding body: Spanish Ministry of Science and Innovation  
File number: MCI.CIBEREHD

Project Name: Collaborating personnel funding Clinical Management Unit Digestive System (Manuel De La Mata García)  
Funding body: Merck Sharp & Dohme Spain  
File number: CCB.0038

Project Name: Collaborating personnel funding Clinical Management Unit Digestive System (María del Valle García Sánchez)  
Funding body: Merck Sharp & Dohme Spain  
File Number: CCB.0037

## Provision of Services to third parties

Project Name: CLIF Acute-on-chronic liver failure in cirrhosis (CANONIC) core study. (José Luis Montero Alvarez)  
File Number: CANONIC

## Clinical Trials

0103/08: A randomized, double-blind, placebo-controlled phase III study of sorafenib as adjuvant treatment for liver cell carcinoma after surgical resection or local ablation  
PI: Manuel de la Mata García

0014/07/EPA1: Recurrence rates and predictive factors in the treatment of hepatitis C in real clinical practice in hospitals in Spain (FAST-4 Study).  
PI: Enrique Fraga Rivas

0198/07: Open, multicenter, randomized study of the efficacy and safety of prednisone with Ada column® versus prednisone alone in the treatment of patients with active mild to moderate steroid-dependent ulcerative colitis  
PI: María del Valle García Sánchez

0020/08/EPA: Long-term non-interventionist registration to assess the safety and effectiveness of HUMIRA® (adalimumab) in patients with active mild to moderate Crohn disease (CD)  
PI: María del Valle García Sánchez

0120/10: A multicenter, randomized, placebo-controlled, double-blind phase III study to assess the efficacy and safety of everolimus (RAD001) in adult patients with advanced liver cell cancer after failure of treatment with sorafeniv  
PI: José Luis Montero Alvarez

0009/10: Long-term follow-up of participants in a phase II or III SCG 503034 trial for the treatment of chronic hepatitis C.  
PI: Manuel de la Mata García

0026/10/EPA-SP: Validation of a treatment adherence questionnaire in patients with hepatitis B. HABIT study.  
PI: Enrique Fraga Rivas

0041/11: A multicenter, prospective, randomized, comparative trial to assess the effectiveness of two vaccines against the hepatitis B virus in patients with inflammatory bowel disease  
PI: María del Valle García Sánchez

0005. CANONIC: CLIF Acute-on-chronic liver failure in cirrhosis (CANONIC) core study.  
PI: José Luis Montero Alvarez

Development and validation of a treatment adherence questionnaire in patients with hepatitis C. AdHepta study.  
PI: Manuel de la Mata García

An epidemiologic, observational study on the impact of cytomegalovirus replication on the evolution of hepatitis C recurrence in recipient patients with liver tx. Vhenus study.  
PI: Manuel de la Mata García

0066/11: Simplification trial with tenovir in patients with chronic hepatitis B resistant to lamivudina and undetectable viral load in treatment with lamivudina in combination with adefovir dipivoxil (Tenosimp-B study).  
PI: Enrique Fraga Rivas

0068/11: Trial of tenofovir in the profilaxis of hematological anti-HBc positive and AgHBs-negative patients on treatment with rituximab. PREBLIN study.  
PI: Enrique Fraga Rivas

1835: A multicenter, observational, retrospective study to assess elective liver retransplantation in Spain  
PI: Antonio Poyato González

1312: Study of co-morbidity and clinical expression of immunologically-mediated inflammatory diseases (psoriasis, Spondyloarthritis and inflammatory bowel disease)  
PI: Federico Gómez Camacho

0232/11: A multicenter, randomized, double-blind parallel-group trial to assess the effectiveness of Adalimumab versus Azatioprina in the prevention of postsurgical recurrence of Crohn disease after 52 weeks  
PI: María del Valle García Sánchez

0215/11: High-sensitivity calprotectin and C-reactive protein as markers of a new diagnostic-therapeutic strategy that evaluates mucosa activity to individualize treatments and improve the prognosis of patients with Crohn disease  
PI: María del Valle García Sánchez

0015/12: A multicenter, randomized, placebo-controlled, double-blind phase IV study to assess the efficacy and safety of sorafenib in patients with advanced liver cell cancer with radiological progression (José Luis Montero Álvarez)  
PI: José Luis Montero Alvarez

1875: Use of Everolimus in liver transplantation.  
PI: Manuel de la Mata García

2017: A study of the renal tubular function and bone remodeling markers during prolonged treatment with entecavir and tenofovir in patients with chronic infection with hepatitis B virus.  
PI: Enrique Fraga Rivas



## Infectious Diseases

**Head Researcher:** Julián de la Torre Cisneros. [julian.torre.sspa@juntadeandalucia.es](mailto:julian.torre.sspa@juntadeandalucia.es)

Spanish Network for Research Infectious Pathology (REIPI). PAIDI Group CTS.647

**Co-Head Researcher:** Antonio Rivero Román

AIDS Research Network (RIS) (Collaborator)

### Scientific Activity

Our group studies infectious diseases from two approaches:

- Clinical-epidemiological studies (which include clinical trials). In these studies, our objective is to differentiate risk factors, clinical features and efficacy/safety of new treatments, thus aiming to improve the prognosis of infectious diseases.
- Studies on pathogenesis from which specific clinical strategies are planned. The most relevant are our studies on immunopathology (in collaboration with the Immunology group) and mitochondrial toxicity (in collaboration with the Clinical Analysis Service).

All our studies start with the identification of a clinical problem that we try to solve using an experimental approach. Our aim is our scientific findings to have an impact on healthcare solutions and improve disease prognosis (translational research).

In particular, our lines of research are as follows:

- Immunopathology, pathogenesis and treatment of HIV infection.
- Pathogenesis and treatment of HIV / HCV co-infection.
- Clinical and epidemiological characterization of infection in transplant patients
- Immunopathology of cytomegalovirus infection.

### Keywords

HIV, CMV, HCV, Immunopathology, Transplant, Antiretroviral therapy. Mitochondrial toxicity.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
De La Torre	Cisneros	Julián Carlos	HR	Researcher
Rivero	Román	Antonio	CO-HR	Researcher
Camacho	Espejo	Ángela	R	Researcher
García	Lázaro	Milagros	R	Researcher
Gracia	Ahufinger	Irene	R	Researcher
Jurado	Jiménez	Rafael	R	Researcher
Kindelán	Jaquotot	José M <sup>a</sup>	R	Researcher
Lara	Contreras	Rosario	R	Researcher
Martínez-Dueñas	López-Marín	Loreto	R	Researcher
Natera	Kindelán	Clara	R	Researcher
Paez	Vega	Aurora	R	Researcher
Rumbao	Aguirre	José	R	Researcher
Vidal	Verdú	Elisa	R	Researcher
Arenas	Muñoz	Cristina	TR	Researcher
Cantisán	Bohórquez	Sara	TR	Researcher
González	Padilla	Marcelino	TR	Researcher
Guirao	Arrabal	Emilio	TR	Researcher
Rivero	Juárez	Antonio	TR	Researcher
Camacho	Pérez	Daniel	AT	Auxiliary Technician
Ruiz	Torres	Laura	AT	Auxiliary Technician
Añón	Gámez	M <sup>a</sup> Teresa	AO	Administrative Officer

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher; R: Researcher;; TR: Trainee Researcher

## Publications

Rivero-Juarez A, Camacho Espejo A, Perez-Camacho I, Neukam K, Caruz A, Mira JA, Mesa P, Garcia-Lazaro M, Torre-Cisneros J, Pineda JA, Rivero A. Association between the IL28B genotype and hepatitis C viral kinetics in the early days of treatment with pegylated interferon plus ribavirin in HIV/HCV co-infected patients with genotype 1 or 4. *Journal of Antimicrobial Chemotherapy*.2012; 67(1);202-205. IF: 5.068

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J.Changes in epidemiology, clinical features and severity of influenza A (H1N1) 2009 pneumonia in the first post-pandemic influenza season. *Clinical and Microbiology Infection*.2012; 18(3);E55-E62. IF: 4.54

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## Research Projects

Project Name: Evaluation of occult hepatitis C virus infection in peripheral blood mononuclear cells and liver tissue in HIV-infected patients with spontaneous clearance of viremia (Angela Camacho Mirror)

Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0036/2010

Project Name: Incidence of fibrosis of uncertain origin in HIV virus-infected patients non-coinfected with hepatotropic virus (Antonio Rivero Roman)

Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0208/2009

Project Name: A prospective, randomized, comparative trial to assess the effectiveness and safety of Levofloxacin versus Isoniazid in the treatment of latent tuberculosis infection of liver transplant (Julian Carlos de la Torre Cisneros)

Funding body: Spanish Ministry of Health, Social Welfare. Networked biomedical research support consortium.

Project Name: Study of HIV sero-different couples to assess HIV transmission rates and determine the factors associated with the use of

preservatives (Antonio Rivero Roman)  
Funding body: The National Institute of Health Research.

Project Name: Influenza virus infections in transplant recipients: a multicenter registry (Julian Carlos de la Torre Cisneros)  
Funding body: University of Alberta (Canada) and Roche

Project Name: Immune reconstitution syndrome in organ transplant recipients with tuberculosis: risks and clinical outcomes (Julian Carlos de la Torre Cisneros)  
Funding body: University of Pittsburgh, Pa, USA

Project Name: Study of the frequency, phenotype and function of T Cd8+cmv-specific lymphocytes as a risk factor for cmv replication in recipient patients. (Julián de la Torre Cisneros)  
Funding body: Carlos III Health Institute. Health Research Fund (Extension)  
File Number: P108/O336

Project Name: Predictive value of immediate vhc viral kinetics on the sustained viral response in patients co-infected with the vih/vhc (Antonio Rivero Roman).  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: PI-0157-2011

Project Name: Study of the kinetics of cmv infection in cmv-seronegative patients receiving an organ from a seropositive donor and its potential association with early immune senescence. (Julian Carlos de la Torre Cisneros)  
Funding body: Carlos III Health Institute  
File Number: P111/O2091

Project Name: A translational study to assess the clinical usefulness of the pre-transplant determination of ifn $\gamma$  secreted by cells t cd8+cmv specified to guide the infection prevention by cmv in patients with low risk of transplanted organs. (Sara Cantisan Bohorquez)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: PI-0004-2012

Project Name: Influence of killer inhibitory receptors (kirs) of natural killer cells in response to the treatment of HCV in patients co-infected by HIV/HCV vaccine. (Antonio Rivero Juarez)  
Funding Body: Regional Ministry of Health and Social Welfare.  
File Number: PI-0430-2012

## Collaboration Agreements

Project Name: Funding of activities of the staff of the Division of Infectious Diseases of the Reina Sofia University Hospital, Cordoba (Antonio Rivero Roman)  
Funding body: Merck Sharp & Dohme de España Sa  
File Number: CCB.0039

Project Name: Consultancy in the area of infectious disease.  
File number: CCB.UCO0015

## Provision of Services to third parties

Project Name: Updating study of HIV-Tuberculosis. (Antonio Rivero Roman)  
File Number: PSS.0002

Project Name: Report on HIV and Co-infection (Antonio Rivero Roman).  
File number: PSS.0005

Project Name: Contract for the provision of MSD monitoring. A Trial. (Julian Carlos de la Torre Cisneros)  
File Number: PSS.0007

Project Name: PARTNER study of the HIV Copenhagen program. (Antonio Rivero Román)  
File Number: PSS.0010

Project Name: Study of clinical sessions. Division of Infectious Diseases. (Antonio Rivero Roman)  
File Number: PSS.0018

## Clinical Trials

0273/10: A prospective, randomized, comparative trial to assess the effectiveness and safety of Levofloxacin versus Isoniazid in the treatment of latent tuberculosis infection of liver transplant PI: Julian Carlos de la Torre Cisneros

1716: Observational trial to determine clinical practice patterns with community acquired pneumonia (CAP) or complicated skin and soft part infection (cSSTI): REACH study.  
PI: Irene Gracia Ahufinger

0011/10: A comparative clinical trial of two therapeutic decision-making strategies in the study of tuberculosis contacts: standard strategy based on the tuberculin sensitivity test (PT) versus PT in combination with QuantiFERON -TB Gold I.  
PI: Jose M<sup>a</sup> Kindelan Jaquotot

0122/08: An open, randomized phase IV comparative study to assess the effectiveness of lopinavir/ritonavir alone versus abacavir/lamivudina and lopinavir/ritonavir/peripheral for peripheral (or limb) fat recovery. KRETA study.  
PI: Antonio Rivero Román

1431: A multicenter, retrospective study to identify the incidence of severe hepatotoxicity in patients co-infected with hepatitis B or C and HIV-1 who previously received treatment with Maraviroc (LIVERMAC study) PI: Antonio Rivero Román

0184/09: Phase 2b study to assess the safety and effectiveness of Boceprevir in patients co-infected with HIV and Hepatitis C  
PI: Antonio Rivero Román

0198/10: A randomized, double-blind phase III study to assess the safety and effectiveness of GSK1349572 50 mg once a day versus Raltegravir 400 mg twice a day both administered in combination with a background therapy selected by the researcher.  
PI: Antonio Rivero Román

0199/10: A randomized, double-blind phase III study to assess the safety and effectiveness of GSK1349572 50 mg once a day versus Raltegravir 400 mg twice a day both administered in double combination with a double-combination, at a fixed dose of transcriptase inhibitors.  
PI: Antonio Rivero Román

0045/09: Effectiveness of high doses of Pegylated interferon-alpha-2a and Ribavirin in the treatment of patients with C virus-induced cirrhosis (genotypes 1 'O 4) co-infected with HIV, non-respondant to previous therapy with standard interferon doses  
PI: Antonio Rivero Román

0101/11: An open, multicenter, early access program to assess the effectiveness of Telaprevir in combination with interferon-alpha and Ribavirin for the treatment of chronic infection with the hepatitis C virus (genotype 1) in patients with advanced fibrosis  
PI: Antonio Rivero Román

0088/11: An open, randomized, noninferiority trial and 96 week-follow-up study to assess the effectiveness of atazanavir/ritonavir + lamivudine as maintenance treatment in patients with viral load suppression  
PI: Antonio Rivero Román

0044/11: A multicenter, randomized, blind, placebo-controlled study to assess the safety of Maraviroc in combination with other antiretrovirals in subjects infected with HIV-1 and hepatitis C and/or B virus  
PI: Antonio Rivero Román

1714: Influence of nevirapin on hepatitis C viral load levels in patients co-infected with VIH/VHC. HELICON study.  
PI: Antonio Rivero Román

1764: Bacterial infection with Staphylococcus aureus: impact of an intervention program on the improvement of the clinical management and study of its clinical and molecular epidemiology.  
PI: Clara Natera Kindelán

0032/08/EPA: An international, multicenter, observational, prospective study on the safety of Maraviroc in combination with an optimized background therapy in previously treated HIV-1 patients.  
PI: Antonio Rivero Román

0079/11: A clinical trial to assess the activity and tolerability of a combination therapy of lopinavir/ritonavir and 3TC replacing a triple therapy of lopinavir/ritonavir and 3TC or FTC in patients with HIV and viral suppression.  
PI: Antonio Rivero Román

0177/11: A randomized, prospective, comparative trial assessing the effectiveness and safety of a seasonal vaccine dose versus two vaccine doses for the prevention of influenza in solid organ recipients.  
PI: Julian Carlos de la Torre Cisneros

0201/11: A multicenter, randomized, double-blind, comparative study of maraviroc + darunavir/ritonavir versus emtricitabin/tenofovir + darunavir/ritonavir for the treatment of naive patients with HIV-1 CCR5 tropism.  
PI: Antonio Rivero Román

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0255/11: A randomized, double-blind, placebo-controlled phase III study of the effectiveness, safety and tolerability of a single infusion of MK 3415 (human monoclonal antibody versus toxin A of Clostridium difficile), MK  
PI: Julian Carlos de la Torre Cisneros

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0197/11: Protease (DRV/rtv) inhibitor in monotherapy or triple therapy in patients with HIV-1 suppression.  
PI: Antonio Rivero Román

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0334/10: A pilot phase III clinical trial to assess the antiviral activity of pegylated interferon + ribavirin + nitazoxanide in chronic HCV Genotype-4 patients with HIV  
PI: Antonio Rivero Román

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0121/11: A randomized, controlled, partially-blind Phase IIb trial to assess the safety, effectiveness and dose-response relation of BMS-663068 in the treatment of HIV-1 patients previously treated  
PI: Antonio Rivero Román

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0016/12: An open, phase IIIb study to assess the effectiveness and safety of Telaprevir, Pegylated interferon-alpha-2a and ribavirin in patients co-infected with chronic hepatitis C, genotype 1 and HIV  
PI: Antonio Rivero Román

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4: Survival of HIV patients receiving renal replacement therapy or renal transplantation in Spain.  
PI: Milagros García Lazaro

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0283/11: A multicenter, randomized, blind, parallel-group, non-inferiority comparative trial of the effectiveness and safety of an immunotherapy versus a viremia-guided approach in the prophylaxis cytomegalovirus infection.  
PI: Julian Carlos de la Torre Cisneros

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0009/10/2: Long-term follow-up of participants in a phase II or III SCH 503034 trial for the treatment of chronic hepatitis C.  
PI: Antonio Rivero Román

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1854: Bridging the gap between antiretroviral treatment guidelines and regular clinical practice. Studying the barriers to the initiation of HAART in patients with indication of HAART.  
PI: Antonio Rivero Román

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0007/12: A randomized, controlled, partially-blind Phase IIb trial to assess the safety, effectiveness and dose-response relation of BMS-986001 in the treatment of HIV-1 patients previously treated followed by an open period  
PI: Antonio Rivero Román

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0246/11: An open study of retreatment with pegylated interferon alpha-2a ribavirin and BMS-79003067-30 with or without BMS-650032 in patients with chronic hepatitis C  
PI: Antonio Rivero Román

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1928: Effectiveness and tolerability of patterns including abacavir/3tc with Darunavir/Ritonavir.  
PI: Angela Camacho Espejo

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1973: A multicenter observational retrospective study of the effectiveness and tolerability of the antiretroviral treatments that include MARA-VI-ROC (MVC) in clinical practice.  
PI: Antonio Rivero Román

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1893: A study of risk factors of nosocomial pneumonia due to infection with methicillin-resistant staphylococcus aureus. A case and control study  
PI: Clara Natera Kindelán

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0258/11: An open, randomized, phase 3B, 48-week duration, comparative study of antiviral effectiveness and safety of ATV/RTV + 3TC versus ATV7RTV + TDF7FTC in naive HIV-1 patients.  
PI: Antonio Rivero Román

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## Inflammation and Cancer

Head Researcher: Eduardo Muñoz Blanco. [fi1muble@uco.es](mailto:fi1muble@uco.es)

AIDS Research Network (RIS). PAIDI Group BIO-304

### Scientific Activity

The Group's main areas of research over recent years are the identification of the molecular signaling pathways that regulate inflammation processes and tumorigenesis, and the latency of HIV-1. The identification of the molecular targets that regulate these processes helps us identify new natural compounds and derivatives (drugs and nutraceuticals) inhibiting the activity of these targets. Our research studies have allowed us to establish sophisticated models of biological activity screening in molecules with therapeutic potential and collaborate with many leading international research groups in the field of pharmaceutical Chemistry. We recently established a new research area focused on the study of the inflammatory processes that occur in skin ulcers, to develop new formulations based on biopharmaceuticals and natural products favouring tissue regeneration.

### Keywords

Inflammation, cancer, tissue regeneration, HIV-1 latency, Pharmacology and Nutraceuticals.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Muñoz	Blanco	Eduardo	HR	Researcher
Calzado	Canale	Marco Antonio	ER	Researcher
Jimenez	Millan	Eugenio	R	Researcher
Moreno	Casado	Paula	TR	Researcher
Soler	Torrónteras	Rafael	TR	Researcher
Cantarero	Carmona	HRene	PDR	Researcher
García	Limonos	Carmen	PDR	Researcher
Pérez	Aguilera	Moisés	PDR	Researcher
Collado	Rojas	Juan Antonio	AT	Auxiliary Technician
Molina	Morán	Rosario	AT	Auxiliary Technician
Santaella	Ruiz	Lourdes	AT	Auxiliary Technician

(\*) HR: Head Researcher; ER: Emerging Researcher; TR: Trainee Researcher;PDR: Postdoctoral researcher

## Publications

Olmedo D, Sancho R, Bedoya LM, Lopez-Perez JL, del Olmo E, Munoz E, Alcamí J, Gupta MP, Feliciano AS.3-Phenylcoumarins as Inhibitors of HIV-1 Replication.Molecules. 2012; 17(8);9245-9257. IF: 2,386

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Fiebich BL, Munoz E, Rose T, Weiss G, McGregor GP.Molecular Targets of the Antiinflammatory Harpagophytum procumbens (Devil's claw): Inhibition of TNF alpha and COX-2 Gene Expression by Preventing Activation of AP-1.Phytotherapy Research. 2012; 26(6);806-811. IF: 2,086

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Vinuesa AG, Sancho R, Garcia-Limonos C, Behrens A, Ten Dijke P, Calzado MA, Munoz E.Vanilloid

receptor-1 regulates neurogenic inflammation in colon and protects mice from colon cancer.Cancer Research. 2012; 72(7);1705-1716. IF: 7,856

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## Research Projects

Project Name: A study of dyrk2 regulation mechanisms in response to hiposis and oncogenic stress (Eduardo Muñoz Blanco)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P09-CTS-4973

Project Name: A study of the dyrk2 kynase regulation and expression as a prognostic factor in lung cancer (Marco Antonio Calzado Canale)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0650/2010

Project Name: Siah-2-mediated chk2 modulation mechanisms in response to oncogenic stress (Marco Antonio Calzado Canale)  
Funding body: MICINN  
File Number: SAF2010-17122

Project Name: A study of factor (HIF)-1 alpha regulation through endocannabinoids. Implications in neuroprotection. (Eduardo Muñoz Blanco)  
Funding body: MICINN  
File Number: SAF2010-19292

Project Name: Pre-clinical development of new cannabinoid derivatives for the treatment of neuroinflammatory diseases (Eduardo Muñoz Blanco)

Funding body: MICINN  
File Number: IPT-2011-0861-900000

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## Collaboration Agreements

Project Name: Biological activity of natural biomedical products (Eduardo Muñoz Blanco)  
Funding body: Beros Consulting S.L.  
File Number: 12012110

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Project Name: Integration of technological platforms for the development of drugs for the treatment of central neural system diseases (Eduardo Muñoz Blanco)  
Funding body: GMV Soluciones Globales Internet S.A.  
File Number: 12012116

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Project Name: Integration of technological platforms for the development of drugs for the treatment of central neural system diseases (Eduardo Muñoz Blanco)  
Funding body: Vivacell Biotechnology España, S.L.  
File Number: 12012115

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## Systemic Autoimmune and Chronic Inflammatory Diseases of the Musculoskeletal System and Connective Tissue

**Head Researcher:** Rosario López Pedrera. [rosario.lopez.exts@juntadeandalucia.es](mailto:rosario.lopez.exts@juntadeandalucia.es)

Nicolás Monardes Contract

**Co-Head Researcher:** Eduardo Collantes Estévez

Professor at University of Cordoba. Head of the Clinical Management Unit of Rheumatology

### Scientific Activity

Our research team uses synergistical clinical-therapeutic, molecular and cellular approaches. Its main objectives are as follows:

- 1) To analyze the cellular and molecular mechanisms regulating the effect of statins and other drugs on development (biological therapy) in preventing thrombosis and atherothrombosis in systemic autoimmune diseases (SAD), such as Primary Antiphospholipid Syndrome (APS), Systemic Lupus Erythematosus (SLE) and Rheumatoid Arthritis (RA). We also conduct studies on mitochondrial dysfunction and oxidative stress in atherothrombosis associated with SAD; in addition, we perform proteomic analyses aimed at identifying new genes/proteins whose expression in patients with APS, SLE or RA and atherosclerosis is altered, and determining the variations in expression patterns as a result of different treatments.
- 2) To register, describe and analyze the clinical, epidemiological, demographic, genetic and radiographic characteristics of the physiological and therapeutic response in patients with ankylosing spondylitis in Spain and compare them with data from Latin American patients.  
The most interesting point will be to ascertain whether the possible differences in clinical expression are due to the genetic load we assume comes from the same genotype (in terms of HLA-B27) and its relationship with the interaction with the environment. Moreover, in this same area: to design, develop and validate a new mobility measurement system (the most important expression of structural damage) in these patients.

## Keywords

Systemic autoimmune diseases (Primary Antiphospholipid Syndrome, Systemic Lupus Erythematosus, Rheumatoid Arthritis), oxidative stress, inflammation, cardiovascular disease, new therapies, spondyloarthropathies, epidemiology, diagnostic criteria, structural damage.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
López	Pedreira	Rosario	HR	Researcher
Collantes	Estévez	Eduardo	CO-HR	Researcher
Aguirre	Zamorano	María Ángeles	R	Researcher
Caracuel	Ruiz	Miguel Ángel	R	Researcher
Castro	Villegas	María del Carmen	R	Researcher
Escudero	Contreras	Alejandro	R	Researcher
Font	Ugalde	Pilar	R	Researcher
Gómez	Gracia	Inmaculada	R	Researcher
Pérez	Guijo	Verónica	R	Researcher
Calvo	Gutierrez	Jerusalem	R	Researcher
Pérez	Sánchez	Carlos	TR	Researcher
Ruiz	Limón	Patricia	TR	Researcher
Barbarroja	Puerto	Nuria	PDR	Researcher
Carretero	Prieto	Rosario María	AT	Auxiliary Technician
López	Montilla	Carmen	AT	Auxiliary Technician
Ruiz	Vilchez	DesHRée	AT	Auxiliary Technician

(\*) HR: Head Researcher; CO-HR:CO-Head Researcher; R: Researcher; TR: Trainee Researcher;; PDR Postdoctoral researcher

## Publications

Schiotis R, Bartolome N, Sanchez A, Szczypiorska M, Sanz J, Cuende E, Estevez EC, Martinez A, Tejedor D, Artieda M, Buzoianu A, Mulero J. Both baseline clinical factors and genetic polymorphisms influence the development of severe functional status in ankylosing spondylitis. *Plos One*. 2012; 7(9);e43428-.  
IF: 4.092

Diaz-Peña R, Aransay AM, Suarez-Alvarez B, Bruges-Armas J, Rodriguez-Ezpeleta N, Regueiro M, Pimentel-Santos FM, Mulero J, Sanchez A, Collantes E, Queiro R, Ballina J, Alves H, Lopez-Larrea C. A high density SNP genotyping approach within the 19q13 chromosome region identifies an association of a CNOT3 polymorphism with ankylosing spondylitis. *Annals of the Rheumatic Diseases*. 2012; 71(5);714-717.  
IF: 8.727

Sciascia S, Lopez-Pedreira C, Roccatello D, Cuadrado MJ. Catastrophic antiphospholipid syndrome (CAPS). *Best Practice & Research in Clinical Rheumatology*. 2012; 26(4);535-541.  
IF: 2.653

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## Research Projects

Project Name: Using a movement analysis system for assessing the effectiveness of biological therapies in patients with ankylosing spondylitis (Eduardo Collantes Estevez)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0243/2009

Project Name: Monitoring therapeutic response in patients with ankylosing spondylitis using a new metrological index basing on the analysis of movement (Eduardo Collantes Estevez)  
Funding body: Carlos III Health Institute  
File Number: 10/01524

Project Name: A study of mitochondrial dysfunction and oxidative stress in atherothrombosis associated with systemic autoimmune diseases. Genomic and proteomic analysis (Rosario Lopez Pedrerera)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0246/2009

Project Name: Analysis of cellular and molecular mechanisms of mitochondrial dysfunction and oxidative stress in atherothrombosis associated with systemic autoimmune diseases. Genomic and proteomic analysis (Rosario Lopez Pedrerera)  
Funding body: Carlos III Health Institute  
File Number: 09/01809

Project Name: Performing a biomechanical analysis of movement and balance to assess the effectiveness of intraarticular treatments in patients with osteoarthritis in the knee. (Verónica Pérez Guijo)  
Funding body: Andalusian Health Department  
File Number: PI-0049-2011

Cellular and molecular mechanisms of atherothrombosis in systemic autoimmune diseases: A apigenetic study. Assessment of response to new therapies. (Rosario Lopez Pedrerera)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: CTS-7940  
2013 Annuity

Project Name: A study of molecular targets involved in the inflammation and apposition of fibrous and bone tissue in ankylosing spondylitis. Alternative therapies. (Alejandro Escudero Contreras)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: PI-0314-2012  
2013 Annuity

Project Name: Mechanisms of atherosclerosis and cardiovascular disease (Rosario Lopez Pedrerera)  
Funding body: Carlos III Health Institute  
File Number: PI12/01511  
2013 Annuity

## Collaboration Agreements

Project Name: UCB Pharma- Dr. Collantes- Diagnosis and treatment of rheumatoid arthritis (Eduardo Collantes Estevez)  
Funding body: UCB Pharma- SA.  
File Number: CCB.0019

Project Name: Agreement between the Clinical Management Unit of Rheumatology and Ucb Pharma (Eduardo Collantes Estevez)  
Funding body: UCB Pharma- SA.  
File Number: CCB.0033

Project Name: A study of new molecular targets involved in the inflammation and apposition of fibrous and bone tissue in ankylosing spondylitis. Alternative therapies. (Eduardo Collantes Estevez)  
Funding body: Roche Farma, S.A.  
File Number: CCB.0035

## Provision of Services to third parties

Project Name: Services provided to the ESPER-ANZA program. (Eduardo Collantes Estevez)  
Funding body: Spanish Foundation of Rheumatology  
File Number: PSS.0008

Project Name: Monitoring therapeutic response in patients with ankylosing spondylitis using a new metrological index basing on the analysis of movement. (Eduardo Collantes Estevez)  
Funding body: Spanish Foundation of Rheumatology  
File Number: PSS.0019

Project Name: CLEIA Project: Online health care system for the individualized treatment of low back pain (Eduardo Collantes Estevez)  
Funding body: Hispafuentes S.L.  
File Number: AVANZA.0001  
2013 Annuity

Project Name: CLEIA Project: Online health care system for the individualized treatment of low back pain (Eduardo Collantes Estevez)  
Funding body: Spanish Ministry of Industry, Energy and Turism  
File Number: AVANZA.0001  
2013 Annuity

## Clinical Trials

1695: Predictive value of FRAX of fracture risk in patients seen in Reumatology Units in Spain.  
PI: Miguel Angel Caracul Ruiz

1581: A multicenter, observational, global study of patients with rheumatoid arthritis not responding or intolerant to a single inhibitor of the tumor necrosis factor (TNF)  
PI: Eduardo Collantes Estevez

Q284/09: Assessing response to etoricoxib in patients with ankylosing spondylitis and inadequate response to > 2 AINES  
PI: Eduardo Collantes Estevez

O201/08: A randomized, placebo-controlled, phase III study to assess the effectiveness and safety of odanacatib (MK-0822) to reduce fracture risk in postmenopausal women with osteoporosis treated with Vitamin D and calcium.  
PI: Alejandro Escudero Contreras

O166/09: An open, randomized study to assess the effectiveness and safety of the monthly treatment with denosumab and Actonel® in postmenopausal women after transition to weekly or daily treatment with alendronate  
PI: Alejandro Escudero Contreras

O178/09: An open study to assess addition of subcutaneous Golimumab to the conventional treatment with disease-modifying antirheumatic drugs in patients with rheumatoid arthritis not previously treated with biological drugs.  
PI: Alejandro Escudero Contreras

0196/09: A multicenter, randomized, double-blind, parallel-group study to assess the safety, disease remission and prevention of articular structural damage in patients on tocilizumab monotherapy and in combination with methotrexate  
PI: Alejandro Escudero Contreras

0191/10: A multicenter, pilot, randomized, parallel-group, placebo-controlled study to assess the effectiveness and safety of three different Adant(r) dosing regimens in patients with knee osteoarthritis  
PI: Alejandro Escudero Contreras

1608: A multicenter, observational study to describe Ro- Actemra(r) (tocilizumab) use and dosing patterns in patients with rheumatoid arthritis in regular clinical practice. ACT-LIFE Study  
PI: María del Carmen Castro Villegas

0128/09: A multicenter study of the effectiveness and safety of the human monoclonal anti-TNF Adalimumab in patients with axial spondylitis  
PI: Eduardo Collantes Estévez

0000/10: A multicenter study of the effectiveness and safety of the human monoclonal anti-TNF Adalimumab in patients with peripheral spondylitis  
PI: Eduardo Collantes Estévez

1626: Response in patients with rheumatoid arthritis treated with abatacept after changing to a biological therapy: The Spanish experience  
PI: Eduardo Collantes Estévez

0028/10: A multicenter, double-blind, parallel-group, phase III to assess the effectiveness and safety of certolizumab pegol in patients with active, progressive psoriatic arthritis in adult patients.  
PI: Eduardo Collantes Estévez

1644: Clinical value of the ASDAS index in Spanish patients with ankylosing spondylitis. AXIS study.  
PI: Eduardo Collantes Estévez

0261/10: A multicenter, randomized, double-blind, placebo-controlled, 12-week duration study of etanercept with a base NSAIDs in the treatment of adult subjects with axial ankylosing spondylitis without radiographic signs and with an open extension of 9  
PI: Eduardo Collantes Estévez

1698: Relationship of anemia and fatigue to functional disability and disease activity in rheumatoid arthritis. SYSTEMIC- AR Study  
PI: Alejandro Escudero Contreras

0169/08: An open, multicenter, blind, phase 4 trial to assess the effectiveness and safety of Infliximab (REMICADE®) in patients with active rheumatoid arthritis not adequately responding to Etanercept (ENBREL®)  
PI: Eduardo Collantes Estévez

0246/10: Diagnosis-escalation, single-blind, phase IB/IIA trial to assess the safety of intravenous administration of expanded allogeneic mesenchymal stem cells derived from adipose tissue to patients with refractory rheumatoid arthritis.  
PI: Eduardo Collantes Estévez

0219/10: A randomized, double-blind, parallel-group, placebo-controlled study to assess the safety and reduction of signs and symptoms during treatment with tocilizumab versus placebo in ankylosing spondylitis patients.  
PI: Eduardo Collantes Estévez

0220/10: A randomized, double-blind, parallel-group, placebo-controlled study to assess the safety and reduction of signs and symptoms during treatment with tocilizumab versus placebo in ankylosing spondylitis patients.  
PI: Eduardo Collantes Estévez

0057/11: A non-inferiority trial to assess the effectiveness and safety of Chondroitin sulfate + Glucosamine hydrochloride versus Celecoxib in patients with osteoarthritis in the knee  
PI: Miguel Angel Caracuel Ruiz

0100/11: A multicenter, double-blind, randomized trial to assess the safety and effectiveness of tocilizumab (TCZ) plus methotrexate (MTX) versus changing to TCZ (placebo-controlled) in patient with active rheumatoid arthritis  
PI: Alejandro Escudero Contreras

1729: A national, multicenter, observational, retrospective follow-up study of the patients who took part in the loadet trial, loadet study.  
PI: Eduardo Collantes Estévez

1789: Assessing cardiovascular risk and its determinants in patients with rheumatoid arthritis, ankylosing spondylitis and psoriatic arthritis  
PI: Eduardo Collantes Estévez

0220/11: A multicenter, randomized, placebo-controlled, double-blind phase III study to assess the efficacy, safety, tolerability and pharmacokinetics of BMS-817399 in adult patients with active moderate to severe rheumatoid arthritis and inadequate response to methotrexate.  
PI: Alejandro Escudero Contreras

1815: Prevalence of axial and peripheral spondyloarthritis in first-degree relatives in patients with ankylosing spondylitis  
PI: Eduardo Collantes Estévez

1794: National Lupus Register of the Spanish Society of Rheumatology  
PI: Maria Angeles Aguirre Zamorano

1811: SCORE: Follow-up and control in rheumatology-nursing  
PI: Eduardo Collantes Estévez

0125/12: A multicenter, randomized, placebo-controlled, double-blind, parallel-group phase III study to assess the efficacy and safety of Apremilast (CC-10004) in the treatment of active ankylosing spondylitis  
PI: Eduardo Collantes Estévez

2035: Pain assessment in Rheumatology  
PI: Eduardo Collantes Estévez

2031: Immunogenicity in anti-TNF therapies in patients with rheumatic diseases  
PI: María del Carmen Castro Villegas

0113/12: Assessment of the clinical utility of a standardized dose reduction protocol in patients with axial spondyloarthritis in persistent clinical remission on treatment with TNF antagonists: An open, multicenter, controlled, randomized study.

PI: Eduardo Collantes Estévez



## New Cancer Therapies

**Head Researcher: Enrique Aranda Aguilar.** earandaa@seom.org

Cooperative Research Thematic Network on Cancer (RETICC)

**Co-Head Researcher: Antonio Rodríguez Ariza**

Nicolás Monardes Contract

### Scientific Activity

Our research group conducts its scientific activities in several areas of both clinical and experimental research. The first area is related to the identification of clinical or molecular factors useful in predicting clinical evolution, response or toxicity in cancer treatment.

In this area we have published clinical evolutionary models for predicting colon and breast cancer; in addition, we have conducted studies on polymorphisms such as UGT1A1, GSTT1 and CYP2D6, and neoplasms in relation to both their toxicity and response. We participate very actively in the development of new therapeutic strategies using drugs aimed at specific targets. To achieve this, we are currently carrying out research studies to develop response markers to this type of (mostly anti-angiogenic) therapies. The development of these markers will optimize the use of new therapies in cancer patients. Another research area looks into the role of nitrosative stress and the regulation of nitrosothiol homeostasis in different experimental models and diseases. Our research is aimed at exploring pathogenic mechanisms and identifying new therapeutic options and targets. Using the latest proteomic approaches to identify posttranslational nitrosative modifications, notably the S-nitrosylation of proteins, we analyse the importance of maintaining the homeostasis of nitrosothiols and the formation of S-nitrosoproteins. Our research has focused so far on different models of hepatocellular injury. However, given the importance of inflammation and nitric oxide production in cancer, we are also conducting studies in experimental models of colon and breast cancer and in clinical samples of patients with this type of neoplasm undergoing different antitumoural treatments.

## Keywords

Colon Cancer, Breast Cancer, Polymorphisms, Gene Expression, Pharmacogenomics, Predictive Models, Angiogenesis, Angiotensins, anti Her-2 therapies, anti-EGFR Therapy. Clinical Trial, Nitric Oxide, Nitrosative Stress, S-nitrosylation, Proteomics, Genomics.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Aranda	Aguilar	Enrique	HR	Researcher
Rodríguez	Ariza	Antonio	ER	Researcher
Barneto	Aranda	Isidoro	R	Researcher
Cañabate	Arias	M <sup>o</sup> Carmen	R	Researcher
Conde	Pérez	Francisco Manuel	R	Researcher
De La Haba	Rodríguez	Juan Rafael	R	Researcher
García	Foncillas	Jesús	R	Researcher
Gómez	España	María Auxiliadora	R	Researcher
Martínez	Peinado	Antonio	R	Researcher
Villar	Pastor	Carlos	R	Researcher
Zárate	Romero	Ruth	R	Researcher
Cañas	Rodríguez	Amanda	TR	Researcher
Valverde	Estepa	Araceli	TR	Researcher
Carrillo	Gil	M <sup>a</sup> Eugenia	AT	Auxiliary Technician
Díaz	Díaz	M <sup>a</sup> Ángeles	AT	Auxiliary Technician
Hernández	Nieto	Vanesa	AT	Auxiliary Technician
Jaraba	Mezquida	Isabel	AT	Auxiliary Technician
Leña	Barranco	Amalia	AT	Auxiliary Technician
Marín	Serrano	Jacinta	AT	Auxiliary Technician
Marín	Serrano	María José	TA	Auxiliary Technician
Miranda	García	Rosario	TA	Auxiliary Technician
Rodríguez	De Julián	Sonia	AO	Administrative Officer

(\*) HR: Head Researcher; ER: Emerging Researcher; R: Researcher; TR: Trainee Researcher

## Publications

Starling N, Vazquez-Mazon F, Cunningham D, Chau I, Taberero J, Ramos FJ, Iveson TJ, Saunders MP, Aranda E, Countouriotis AM, Ruiz-Garcia A, Wei G, Tursi JM, Guillen-Ponce C, Carrato A. A phase I study of sunitinib in combination with FOLFIRI in patients with untreated metastatic colorectal cancer. *Annals of Oncology*.2012; 23(1):119-127. IF: 6.425

Alba E, Calvo L, Albanell J, De la Haba JR, Lanza AA, Chacon JI, Sanchez-Rovira P, Plazaola A, Garcia-Asenjo JAL, Bermejo B, Carrasco E, Lluch A.

Chemotherapy (CT) and hormonotherapy (HT) as neoadjuvant treatment in luminal breast cancer patients: results from the GEICAM/2006-03, a multicenter, randomized, phase-II study. *Annals of Oncology*.2012; 23(12):3069-3074. IF: 6.425

Sastre J, Maestro ML, Gomez-Espana A, Rivera F, Valladares M, Massuti B, Benavides M, Gallen M, Marcuello E, Abad A, Arrivi A, Fernandez-Martos C, Gonzalez E, Taberero JM, Vidaurreta M, Aranda E, Diaz-Rubio E. Circulating Tumor Cell Count Is a Prognostic Factor in Metastatic Colorectal Cancer Patients Receiving First-Line Chemotherapy Plus Bevacizumab: A Spanish Coopera-

tive Group for the Treatment of Digestive Tumors Study. *Oncologist*.2012; 17(7):947-955. IF: 3.91

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Sastre J, Gravalos C, Rivera F, Massuti B, Valladares-Ayerbes M, Marcuello E, Manzano JL, Benavides M, Hidalgo M, Diaz-Rubio E, Aranda E. First-line cetuximab plus capecitabine in elderly patients with advanced colorectal cancer: clinical outcome and subgroup analysis according to KRAS status from a Spanish TTD Group Study. *Oncologist*.2012; 17(3);339-345.  
IF: 3.91

Diaz-Rubio E, Gomez-Espana A, Massuti B, Sastre J, Abad A, Valladares M, Rivera F, Safont MJ, de Prado PM, Gallen M, Gonzalez E, Marcuello E, Benavides M, Fernandez-Martos C, Losa F, Escudero P, Arrivi A, Cervantes A, Duenas R, Lopez-Ladron A, Lacasta A, Llanos M, Taberero JM, Anton A, Aranda E. First-line XELOX plus Bevacizumab followed by XELOX plus Bevacizumab or single-agent Bevacizumab as maintenance therapy in patients with metastatic colorectal cancer: The phase III MACRO TTD study. *Oncologist*.2012; 17(1);15-25.  
IF: 3.91

Segura PP, Ponce CG, Cajal TRY, Blanch RS, Aranda E. Hereditary pancreatic cancer: molecular bases and their application in diagnosis and clinical management. A guideline of the TTD group. *Clinical & Translational Oncology*.2012; 14(8);553-563.  
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IF: 1.327

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IF: 1.676

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IF: 6.425

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comitant weekly intravenous oxaliplatin combined with oral capecitabine for stages II-III rectal cancer. *Clinical & Translational Oncology*.2012; 14(8);592-598.  
IF: 1.327

Diaz-Rubio E, Gomez-Espana A, Massuti B, Sastre J, Reboredo M, Manzano JL, Rivera F, Safont MJ, Montagut C, Gonzalez E, Benavides M, Marcuello E, Cervantes A, de Prado PM, Fernandez-Martos C, Arrivi A, Bando I, Aranda E. Role of Kras Status in Patients with Metastatic Colorectal Cancer Receiving First-Line Chemotherapy plus Bevacizumab: A TTD Group Cooperative Study. *Plos One*.2012; 7(10);nº e47345-  
IF: 4.092

Perez-Sanchez C, Ruiz-Limon P, Aguirre MA, Bertolaccini ML, Khamashta MA, Rodriguez-Ariza A, Segui P, Collantes-Estevez E, Barbarroja N, Khraiwesh H, Gonzalez-Reyes JA, Villalba JM, Velasco F, Cuadrado MJ, Lopez-Pedraera C. Mitochondrial dysfunction in antiphospholipid syndrome: implications in the pathogenesis of the disease and effects of coenzyme Q(10) treatment. *Blood*.2012; 119(24);5859-5870.  
IF: 9.898

Herencia C, Martinez-Moreno JM, Herrera C, Corrales F, Santiago-Mora R, Espejo I, Barco M, Almaden Y, de la Mata M, Rodriguez-Ariza A, Munoz-Castaneda JR. Nuclear translocation of beta-catenin during mesenchymal stem cells differentiation into hepatocytes is associated with a tumoral phenotype. *Plos One*.2012; 7(4);nº e34656-  
IF: 4.092

Aranda E, Lopez-Pedraera C, De La Haba-Rodriguez JR, Rodriguez-Ariza A. Nitric oxide and cancer: the emerging role of S-nitrosylation. *Current Molecular Medicine*.2012; 12(1);50-67.  
IF: 4.476

Lopez-Sanchez LM, Lopez-Pedraera Ch, Rodriguez-Ariza A. Proteomics insights into deregulated protein S-nitrosylation and disease. *Expert review of Proteomics*.2012; 9(1);59-69.  
IF: 3.685

Lopez-Pedraera C, Perez-Sanchez C, Ramos-Casals M, Santos-Gonzalez M, Rodriguez-Ariza A, Cuadrado MJ. Cardiovascular risk in systemic autoimmune diseases: epigenetic mechanisms of immune regulatory functions. *Clinical & Developmental Immunology*.2012; Art nº 974648-  
IF: 1.838

Lopez-Pedraera C, Ruiz-Limon P, Valverde-Esteba A, Barbarroja N, Rodriguez-Ariza A. To cardiovascular disease and beyond: new therapeutic perspectives of statins in autoimmune diseases and cancer. *Current Drug Targets*.2012; 13(6);829-841.  
IF: 3.553

## Research Projects

Project Name: A study of genetic polymorphisms in the renin angiotensin and the vegf y vegfr-1 system in colon and breast cancer as pre-

dictors of response to antiangiogenic therapy. Enrique Aranda Aguilar  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0009/2010

Project Name: Alteration of nitrosothiol homeostasis and protein nitrosylation during response to targeted therapy in colon and breast cancer: therapeutic implications. (Antonio Rodríguez Ariza)  
Funding body: Carlos III Health Institute  
File Number: 10/00428

Project Name: Genetic polymorphisms in vegf, vegfr-1 and renin angiotensin systems as potential predictors of response to antiangiogenic therapy in colon and breast cancer (Enrique Aranda Aguilar)  
Funding body: Carlos III Health Institute  
File Number: 10/00534

Project Name: Assessing the involvement of nitrosative stress and protein nitrosylation in the response to targeted therapies in colon and breast cancer (Antonio Rodríguez Ariza)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0230/2009

Project Name: Detection system of volatile compounds for early diagnosis of lung and colon cancer (Antonio Rodríguez Ariza)  
Funding body: MINECO  
File Number: CCB.030PM

Project Name: Analysis of polymorphisms related with hypertension as a predictor of response to antiogenic treatment in cancer (Juan Rafael De La Haba Rodríguez)  
Funding body: Carlos III Health Institute  
File Number: PI12/O2017  
2013 Annuity

## Collaboration Agreements

Project Name: Analytical assays for the evaluation of AGTR1 expression in tumors as a possible predictor of response to angiogenic therapy in connection with the clinical development of bevacizumab (Juan Rafael De La Haba Rodríguez)  
Funding body: Roche Farma, S.A.  
File Number: CCB.0028

## Clinical Trials

0064/08: Phase II Docetaxel-Oxaliplatin-Capecitabine (DOX) at adjusted doses in patients with advanced gastric adenocarcinoma and suboptimal general state. (MiniDOX)  
PI: Enrique Aranda Aguilar

0250/09 A phase II study of panitumumab as a first-line single agent in fragile elderly patients with advanced colorectal cancer with non-mutated kras.  
PI: Enrique Aranda Aguilar

0239/07: A multicenter, randomized, phase III

study to evaluate individualized treatments by assessing BRCA1 in patients with advanced small cell lung cancer. BREC Study (BRCA1 expression customization).

PI: Isidoro Barneto Aranda

0260/09: A multicenter, randomized, double-blind, placebo-controlled phase III study of everolimus administered daily in combination with trastuzumab and vinorelbine in previously treated women with metastatic or locally advanced breast cancer with overexpression of HER-2/neu

PI: Juan Rafaél de la Haba Rodríguez

0181/09: A randomized, double-blind, placebo-controlled trial with neratinib (HKI-272) after trastuzumab in women with breast cancer in initial stage with overexpression/amplification of HER-2/neu

PI: Juan Rafaél de la Haba Rodríguez

0040/08: A multicenter, randomized, double-blind, phase III study with multiple doses of Alpharadin in the treatment of patients with hormone-refractory prostate cancer and bone metastasis

PI: Enrique Aranda Aguilar

0253/08: An open, multicenter, randomized, exploratory study assessing the effectiveness and safety of panitumumab in combination with FOLFOX 4 chemotherapy or panitumumab with FOLFIRI chemotherapy in subjects with colorectal cancer with non-mutated KRAS.

PI: Enrique Aranda Aguilar

0144/08: A randomized, phase II clinical study of radiotherapy, hormone therapy and chemotherapy plus docetaxel versus radiotherapy and hormone therapy in patients with high-risk localized prostate cancer (Stage III and IV)

PI: Enrique Aranda Aguilar

0209/07: A phase II study to determine the effectiveness of sunitinib in patients with metastatic or locally advanced renal cell carcinoma not eligible to starting curative nephrectomy

PI: Enrique Aranda Aguilar

0046/09: An open, multicenter, phase II study to assess the safety and effectiveness of panitumumab in combination with irinotecan in patients with metastatic colorectal cancer with non-mutated KRAS refractory to irinotecan-based chemotherapy

PI: Enrique Aranda Aguilar

1505: An epidemiological study to describe clinical management patterns of NSCLC in Europe. Lung-EPICLIN

PI: Isidoro Barneto Aranda

0198/05: An open, multicenter, randomized phase IV-III study to assess the effectiveness of maintenance adjuvant chemotherapy with capecitabine (X) after standard adjuvant chemotherapy in patients with operable breast cancer, hormone receptors

PI: Juan Rafaél de la Haba Rodríguez

0133/08: A multicenter, randomized, phase II comparative study of treatment with epirubicin and cyclophosphamide followed by treatment with docetaxel and trastuzumab versus epirubicin and cyclophosphamide followed by docetaxel and lapatinib in women with primary breast cancer

PI: Juan Rafaél de la Haba Rodríguez

0219/08: An open, phase II study of bevacizumab in combination with paclitaxel and gemcitabine as first-line treatment in patients with metastatic or locally advanced HER-2 negative breast cancer.

PI: Juan Rafaél de la Haba Rodríguez

0269/08: A pilot, multicenter, randomized, double-blind, neoadjuvant study of the combination of exemestane and sunitinib in postmenopausal women with primary HER2-negative breast cancer, positive hormone receptors

PI: Juan Rafaél de la Haba Rodríguez

0254/06: Phase III trial to assess the role of ovarian function suppression and Exemestane as adjuvant treatments for premenopausal women with endocrine-sensitive breast cancer -Tamoxifen versus ovarian function suppression + T

PI: Juan Rafaél de la Haba Rodríguez

1521: Development and validation of a questionnaire of sexual dysfunction/satisfaction in breast cancer patients who have received adjuvant treatment

PI: Juan Rafaél de la Haba Rodríguez

0226/09: A multicenter, multinational, randomized, phase II study to assess pertuzumab in combination with trastuzumab administered concomitantly or sequentially to a regular anthracycline-based chemotherapy

PI: Juan Rafaél de la Haba Rodríguez

0165/07: An open, multicenter, randomized, parallel-group, phase III trial to compare the effectiveness and tolerability of administering Fulvestrant (FASLO-DEX®) for three years in combination with Anastrozol (ARIMIDEX®) for five years versus Anastrozol for five years

PI: Juan Rafaél de la Haba Rodríguez

0099/04: A randomized, phase III comparative study of exemestane versus placebo in postmenopausal women at increased risk of developing breast cancer

PI: Juan Rafaél de la Haba Rodríguez

0039/06: A phase II study of the cardiac safety of pegylated liposomal doxorubicin (Caelyx®) in patients with NED breast cancer previously treated with anthracyclines

PI: Juan Rafaél de la Haba Rodríguez

1134: Lifestyle and breast cancer risk in Spain

PI: Juan Rafaél de la Haba Rodríguez

0260/09: A multicenter, randomized, double-blind, placebo-controlled phase III study of everolimus daily administered in combination with trastuzumab and vinorelbine in previously

treated women with metastatic or locally advanced breast cancer with overexpression

PI: Juan Rafaél de la Haba Rodríguez

0082/10: An open, randomized, phase II study to assess the effectiveness and safety of paclitaxel weekly administered as a single agent and two different administration regimes of SAR240550 (BSI-201), a PARP-1 inhibitor, in combination with paclitaxel weekly administered.

PI: Juan Rafaél de la Haba Rodríguez

0013/09: An open, randomized, phase II study of neratinib versus lapatinib plus capecitabine in the treatment of locally advanced or metastatic erbB-2-positive breast cancer

PI: Juan Rafaél de la Haba Rodríguez

0048/09: A randomized, phase II study of capecitabine+Bevacizumab+external radiotherapy versus Capecitabine+external radiotherapy as preoperative treatment in patients with resectable locally advanced rectal cancer

PI: Enrique Aranda Aguilar

0017/09/EPA: Register of small cell cancer treatment and outcomes. Small Cell Cancer Treatment and Outcome Register (SCOT Register)

PI: Isidoro Barneto Aranda

0002/10: A phase II study of capecitabine-trastuzumab (xelox-trastuzumab) as perioperative treatment in patients with unresectable gastric or gastroesophageal junction adenocarcinoma

PI: Enrique Aranda Aguilar

0250/09: A phase II study of panitumumab as a single first-line agent in fragile elderly patients with advanced colorectal cancer with non-mutated KRAS

PI: Enrique Aranda Aguilar

0013/10: A multicenter, randomized, phase II study to assess the safety and efficacy of a treatment with mFOLFOX-6 plus cetuximab versus an initial treatment with mFOLFOX-6 plus cetuximab (8 cycles) followed by exclusive maintenance treatment with cetuximab

PI: Enrique Aranda Aguilar

0131/09: Selective treatment in colorectal cancer: selection of capecitabine or 5-fluorouracil basing on TS-3'UTR and ERCC1-118 polymorphisms for combination with oxaliplatin or irinotecan as chemotherapy in combination with first-line bevacizumab.

PI: Enrique Aranda Aguilar

0046/05: Randomized, phase III trial to assess the predictive reliability of a test based on the expression of a specific genetic profile (genetic CHIP) to select neoadjuvant chemotherapy based on taxanes and/or anthracyclines

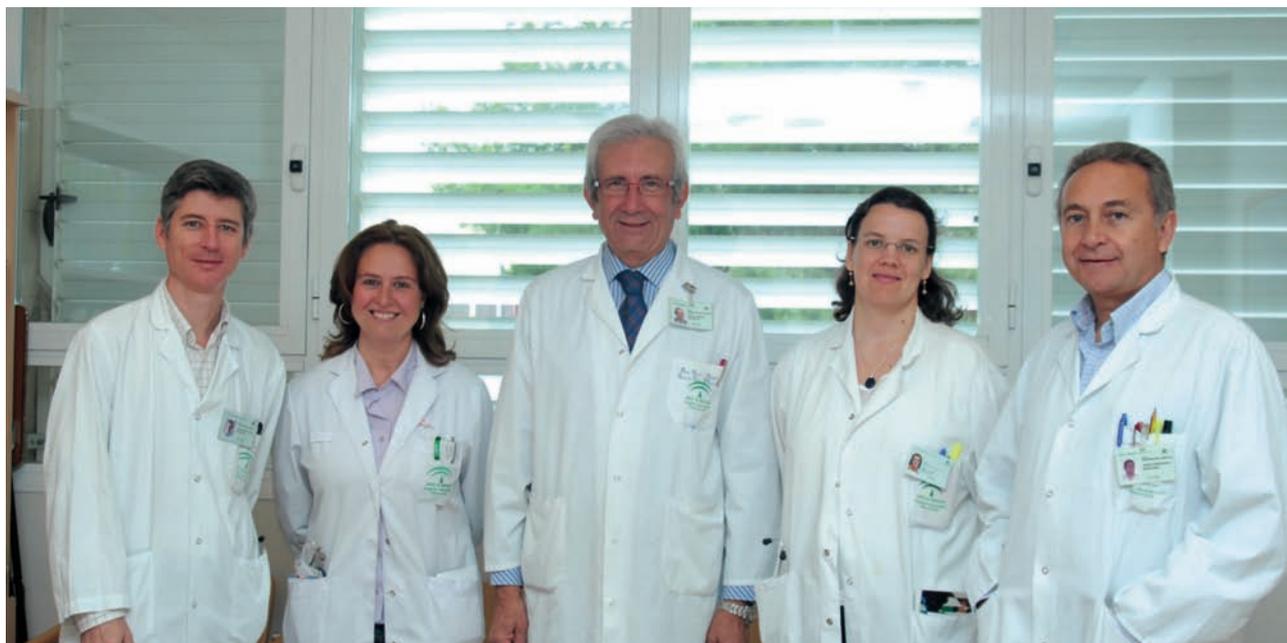
PI: Enrique Aranda Aguilar

0090/07: An open, multicenter, randomized, phase III study of lapatinib, trastuzumab sequentially administered or administered in combination as adjuvant treatment in a patient with HER2/ERBB2-positive breast cancer.

PI: Juan Rafaél de la Haba Rodríguez

- 0148/07: A multicenter, randomized study to assess the effectiveness and safety of bevacizumab in combination with letrozol alone in postmenopausal women with locally recurrent or metastatic breast cancer with indication of hormone therapy  
PI: Juan Rafaél de la Haba Rodríguez
- 0179/07: A multicenter, international, randomized phase II study of trastuzumab and docetaxel versus trastuzumab, docetaxel and pertuzumab, compared with trastuzumab and pertuzumab in patients with locally advanced inflammatory or early HER2-positive breast cancer  
PI: Enrique Aranda Aguilar
- 0268/10: A randomized, phase II trial of docetaxel-carboplatin in combination with Iniparib (BSI-201) and docetaxel-carboplatin as neoadjuvant treatment of patients with early stage and triple-negative phenotype breast cancer  
PI: Juan Rafaél de la Haba Rodríguez
- 0227/10: A randomized, phase III study to assess the effectiveness and safety of continuous and reinduction treatment with bevacizumab in combination with chemotherapy in locally recurrent or metastatic breast cancer patients  
PI: Juan Rafaél de la Haba Rodríguez
- 0243/10: A randomized, phase IIb assay to assess the effectiveness of gemcitabin-erlotinib-capecitabin in patients with metastatic pancreatic cancer. GECA  
PI: Enrique Aranda Aguilar
- 0270/10: An open multicenter, randomized, phase III study to compare the safety and effectiveness of TKI258 versus sorafenib in patients with metastatic renal cell cancer after therapy failure  
PI: Enrique Aranda Aguilar
- 0215/04: An open, multicenter, randomized assay to assess zoledronic acid in the prevention of bone loss associated with cancer treatment in postmenopausal women with RE+ breast cancer  
PI: Enrique Aranda Aguilar
- 0318/10: A multicenter, placebo-controlled, phase II study to assess the safety and effectiveness of the cream ATH008 in patients with Palmar Plantar Erythrodysesthesia Syndrome (SEPP) secondary to capecitabin monotherapy  
PI: Juan Rafaél de la Haba Rodríguez
- 0135/11: HCl anamorelin in the treatment of cachexy associated with non-small cell lung cancer (NSCLC-C): A multicenter, randomized, double-blind, placebo-controlled, phase III study to assess the safety and effectiveness of anamorelina HCl.  
PI: Isidoro Barneto Aranda
- 0138/11: Anamorelin HCl in the treatment of cachexy associated with non-small lung cancer: An extension study  
PI: Isidoro Barneto Aranda
- 0327/10: An open, multicenter, expanded access study of RO5185426 in patients with metastatic melanoma  
PI: Enrique Aranda Aguilar
- 0133/11: A randomized, phase III study of ABI-007 plus Gemcitabine versus Gemcitabine alone weekly administered in patients with metastatic pancreatic adenocarcinoma  
PI: Enrique Aranda Aguilar
- 0129/11: A phase II study of Axitinib as maintenance treatment in patients with metastatic colorectal carcinoma  
PI: Enrique Aranda Aguilar
- 1894: A post-authorisation, observational study to assess tolerability to Raltitrexed and the profile of patients treated with Raltitrexed alone or in combination with oxaliplatin (TOMOX) as cancer therapy.  
PI: María Auxiliadora Gómez España
- 0231/11: An open, multicenter, randomized, parallel-group phase II clinical study to assess the effectiveness and safety of pertuzumab administered in combination with trastuzumab and an aromatase inhibitor for first-line treatment  
PI: Juan Rafael de la Haba Rodríguez
- 0198/11: A multicenter, randomized, double-blind, placebo-controlled study to compare chemotherapy plus trastuzumab and placebo versus chemotherapy plus trastuzumab and pertuzumab as adjuvant treatment in HER-2 positive primary breast cancer patients  
PI: Juan Rafael de la Haba Rodríguez
- 0143/11: A randomized, double-blind, phase III study to assess the effectiveness and safety of PF-00299804 versus erlotinib in the treatment of advanced small cell lung cancer after progression for at least a previous chemotherapy  
PI: Isidoro Barneto Aranda
- 0086/12: LUX-Breast 3: A randomized, phase II study of afatinib monotherapy or in combination with vinorelbin versus the researcher's treatment of choice in HER2-positive breast cancer patients with progressive cerebral metastasis  
PI: Juan Rafaél de la Haba Rodríguez
- 0104/12: An open, multicenter, expanded-access study of postmenopausal women with metastatic or locally advanced estrogen-receptor positive breast cancer with progression after hormone treatment  
PI: Juan Rafaél de la Haba Rodríguez
- 0073/12: A randomized, phase III clinical assay to assess the effectiveness of FOLFOX + bevacizumab versus FOLFOXIRI + bevacizumab as first-line treatment in naive patients with metastatic colorectal cancer with three or more tumor cells  
PI: Enrique Aranda Aguilar
- 0071/12: A randomized, phase II clinical assay to explore the impact of the BRAF and PI3K state on the effectiveness of FOLFIRI + Bevacizumab or Cetuximab as first-line treatment of patients with metastatic colorectal cancer with native KRAS  
PI: Enrique Aranda Aguilar
- 0098/12: An open, exploratory, pharmacogenomic, single-group phase II study of eribulin (HALAVEN®) monotherapy as neoadjuvant treatment for operable I-II stage breast cancer without HER2 overexpression.  
PI: Juan Rafael de la Haba Rodríguez
- 1988: A combined analysis of the genome wide association study and the microarm study (mi-arm) for the identification of predictors of effectiveness of therapy with bevacizumab inpatients with metastatic breast cancer  
PI: Juan Rafael de la Haba Rodríguez
- 0171/12: A randomized, double-blind, placebo-controlled, phase III study of BKM120 in combination with fulvestrant in postmenopausal women with locally advanced or metastatic hormone-receptor positive and HER2-negative breast cancer with progression  
PI: Juan Rafael de la Haba Rodríguez
- 0146/12: A randomized, double-blind, placebo-controlled, phase II study of BKM120 plus paclitaxel in patients with inoperable, HER2-negative, metastatic or locally-advanced breast cancer with our without PI3K signalling pathway activation  
PI: Juan Rafael de la Haba Rodríguez
- 0156/12: An open, multicenter, single-arm clinical assay to assess the safety and health-related quality of life of aflibercept in metastatic colorectal cancer patients  
PI: Enrique Aranda Aguilar
- 2030: Assessing rapid in situ mRNA (RISH™) hybridation as a technique for detecting HER2 overexpression in breast cancer  
PI: Juan Rafael de la Haba Rodríguez
- 2059: A study to assess arterial hypertension as a predictor of effectiveness of bevacizumab (bv) associated with chemotherapy in metastatic colorectal cancer and in metastatic breast cancer  
PI: Enrique Aranda Aguilar
- Q229/12: A multicenter, single-arm study of trastuzumab emtansine (TDM1) in patients with metastatic or locally advanced, HER2-positive breast cancer patients previously treated with an anti-HER2 agent-based treatment and chemotherapy.  
PI: Juan Rafael de la Haba Rodríguez
- 0075/12: A phase IIIb study of regorafenib in patients with metastatic colorectal cancer with progression to conventional treatments  
PI: Enrique Aranda Aguilar





## Nephrology. Cell Damage in Chronic Inflammation

Head Researcher: Pedro Aljama García. [pedro.aljama.sspa@juntadeandalucia.es](mailto:pedro.aljama.sspa@juntadeandalucia.es)

Renal Research Network (REINREN). PAIDI Group CTS-260

Co-Head Researcher: Julia Carracedo Añón

Nicolás Monardes Contract

### Scientific Activity

1.-The latest technological advances in the treatment of chronic kidney disease have helped minimize the inflammation associated with the disease and improve our patients' survival rates and quality of life. However, in these patients a microinflammatory state persists accompanied by a high percentage of activated cells that are capable of producing a sustained inflammatory response and can produce pathological complications when combined with other low-intensity stimuli. Our team assesses the effectiveness of pharmacological therapies, hemodialysis and kidney transplantation in improving this chronic microinflammatory state associated with kidney disease.

2.-Mechanisms of cell damage and repair conditioning the response to stress caused by chronic inflammation. The working model focuses on immunocompetent cells and vascular wall cells. In addition, we analyze the mechanisms regulating the stress response in circulating progenitor cells in peripheral blood.

### Keywords

Cell activation, chronic renal failure, microinflammation, cell therapy, renal transplantation. Inflammation, cellular stress, genomic damage, endothelium.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Aljama	García	Pedro	HR	Researcher
Carracedo	Añón	Julia	CO-HR	Researcher
Álvarez De Lara	Sánchez	María Antonia	R	Researcher
Briceño	Alonso	Carolina	R	Researcher
Buendía	Bello	Paula	R	Researcher
Carmona	Carpio	Andrés	R	Researcher
Espinosa	Hernández	Mario	R	Researcher
Martín	Malo	Alejandro	R	Researcher
Merino	Rodríguez	Ana María	R	Researcher
Navarro	Cabello	María Dolores	R	Researcher
Rodríguez	Benot	Alberto	R	Researcher
Santamaría	Olmo	Rafael	R	Researcher
Soriano	Cabrera	Sagrario	R	Researcher
Agüera	Morales	María Luisa	TR	Researcher
Ariza	Fuentes	Francisco Javier	TR	Researcher
Crespo	Montero	Rodolfo	TR	Researcher
Egea	Montaño	Jerónimo	TR	Researcher
López	Andréu	María	TR	Researcher
Luna	Ruiz	Carlos	TR	Researcher
Ojeda	López	Raquel	TR	Researcher
Cañadillas	López	M <sup>a</sup> Sagrario	PDR	Researcher
Moyano	García	M <sup>a</sup> Rosa	AT	Auxiliary Technician
Jiménez	Moral	María José	AT	Auxiliary Technician
Cabada	Añón	M <sup>a</sup> Teresa	AO	Administrative Officer

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher; R: Researcher; PDR: Post-doctoral researcher; TR: Trainee Researcher

## Publications

Mazuecos A, Benot AR, Moreno A, Burgos D, Agüera M, Alvarez TG, Hernandez D, Navarro D, Castro P. Renal Replacement Therapy in Patients With HIV Infection in a European Region: Outcomes Following Renal Transplantation. *Transplantation Proceedings*. 2012; 44(7):2053-2056. IF: 1.005

Espinosa-Hernandez M, Ortega-Salas R, Lopez-Andreu M, Gomez-Carrasco JM, Perez-Saez MJ, Perez-Seoane C, Aljama-Garcia P. C4d as a diagnostic tool in membranous nephropathy. *Nefrología*. 2012; 32(3):295-299. IF: 1.00

Martin-Malo A, Merino A, Carracedo J, Alvarez-Lara MA, Ojeda R, Soriano S, Crespo R, Ramirez R, Aljama P. Effects of intravenous iron on mono-

nuclear cells during the haemodialysis session. *Nephrology Dialysis Transplantation*. 2012; 27(6):2465-2471. 2012 IF: 3.396

Carracedo J, Buendia P, Merino A, Madueno JA, Peralbo E, Ortiz A, Martin-Malo A, Aljama P, Rodriguez M, Ramirez R. Klotho modulates the stress response in human senescent endothelial cells. *Mechanisms of ageing and development*. 2012; 133(11-12):647-654. IF: 3.439

Merino A, Alvarez-Lara MA, Ramirez R, Carracedo J, Martin-Malo A, Aljama P. Losartan prevents the development of the proinflammatory monocytes CD14(+)/CD16(+) in haemodialysis patients. *Nephrology Dialysis Transplantation*. 2012; 27(7):2907-2912. IF: 3.396

Perdomo KT, Cabello MDN, Sáez MJP, Pérez MJR, Morales MLA, García PA. Reversible acute encephalopathy with mutism, induced by calcineurin inhibitors after renal transplantation. *Journal of Nephrology*. 2012; 25(5):839-842. IF: 1.654

Cuevas X, Garcia F, Martin-Malo A, Fort J, Lladós F, Lozano J, Perez-Garcia R. Risk factors associated with cardiovascular morbidity and mortality in Spanish incident hemodialysis patients: two-year results from the ANSWER study. *Blood Purification*. 2012; 33(1-3):21-29. IF: 2.104

Morales JM, Marcen R, del Castillo D, Andres A, Gonzalez-Molina M, Oppenheimer F, Seron D, Gil-Vernet S, Lampreave I, Gainza FJ, Valdes F, Cabello M, Anaya F, Escuin F, Arias M, Pallardo L, Bustamante J. Risk factors for graft loss and mortality after renal transplantation according to recipi-

entage: a prospective multicentre study. *Nephrology Dialysis Transplantation*. 2012; 27(4);iv39-iv46. IF: 3,396

Marin C, Delgado-Lista J, Ramirez R, Carracedo J, Caballero J, Perez-Martinez P, Gutierrez-Mariscal FM, Garcia-Rios A, Delgado-Casado N, Cruz-Teno C, Yubero-Serrano EM, Tinahones F, Malagon MD, Perez-Jimenez F, Lopez-Miranda J. Mediterranean diet reduces senescence associated stress in endothelial cells. *Age*. 2012; 34(6);1309-1316. IF: 3,948

Aljama P. ORD Work and Initiative Group ("Optimising Results in Dialysis"). *Nephrology*. 2.2.1. IF: 1.00

## Research Projects

Project Name: Endothelial microparticles as markers of arteriosclerosis in chronic renal disease (Julia Carracedo Añón).  
Funding Body: Regional Ministry of Health and Social Welfare  
File Number: 0235/2009

Project Name: Endothelial microparticles in the regulation of the balance between vascular damage and repair. Study of the accelerated atherosclerosis model in chronic renal disease. (Julia Carracedo Añón).  
Funding Body: Carlos III Health Institute  
File Number: 09/0836

Project Name: Carbamylated low-density lipoprotein in endothelial damage in chronic kidney disease (Rafael Ramirez Chamond).  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0797/2010

Project Name: Role of erythropoiesis-stimulating agents in vascular endothelial protection against damage associated with chronic inflammation (Rafael Ramirez Chamond).  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: CTS.6337

Project Name: Endothelial cell senescence and generation of microparticles. A common mechanism in the pathogenesis of atherosclerosis in the elderly and in patients with chronic renal failure. (Rafael Ramirez Chamond).  
Funding Body: Carlos III Health Institute  
File Number: P111/01536

Project Name: Inflammation and endothelial dysfunction in uremia: The role of convective transport in Hemodialysis (Alejandro Martín Malo).  
Funding Body: Regional Ministry of Health and Social Welfare  
File Number: 0227/2009

Project Name: Effect of the depurative efficacy of different types of dialysis on endothelial inflammation and damage (Alejandro Martín Malo).  
Funding Body: Carlos III Health Institute  
File Number: 10/00960

Project Name: Endothelial damage in patients with chronic renal failure: cellular therapy (Pedro Aljama García).  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P08-CTS-03797

Project Name: Modulating role of endothelial microparticles in the development of endothelial damage, Arteriosclerosis and vascular calcification (Julia Carracedo Añón).  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P11-CTS-7352

Project Name: Inflammation and calcifying vascular disease in uremia. Julia Carracedo Añón  
Funding body: Carlos III Health Institute  
File Number: P112/01489  
2013 Annuity

Project Name: Endothelial damage and repair modulation through the inhibition of xanthine oxidase in patients with chronic kidney disease. A crossover, double-blind, placebo-controlled trial. (Rafael Santamaria Olmo).  
Funding body: Carlos III Health Institute  
File Number: P112/01866  
2013 Annuity

## Clinical Trials

0113/06: An open, multicenter, randomized, 2-year follow-up study to assess the effect of suppressing calcineurin inhibitors and introducing everolimus early in renal transplant recipients.  
PI: Pedro Aljama García

0159/09: An open, multicenter, placebo-controlled trial of eculizumab in adult patients with hemolytic uremic syndrome respondent to plasma therapy  
PI: Mario Espinosa Hernández

0174/09: An open, multicenter, placebo-controlled trial of eculizumab in adult patients with atypical hemolytic uremic syndrome respondent to plasma therapy  
PI: Mario Espinosa Hernández

0155/06: Assessing treatment with Cinacalcet HCl to reduce cardiovascular events  
PI: Alejandro Martín Malo

0097/07: Utility of rapamycin for the secondary prevention of cutaneous tumors in renal transplant recipients with recurrent squamous cell carcinoma.  
PI: María Dolores Navarro Cabello

0179/09: An open, multicenter, placebo-controlled trial of eculizumab in adolescent patients with atypical hemolytic uremic syndrome non-respondent to plasma therapy  
PI: Mario Espinosa Hernández

0158/09: An open, multicenter, placebo-controlled trial of eculizumab in adult patients with hemolytic uremic syndrome respondent to plasma therapy.  
PI: Mario Espinosa Hernández

1643: An observational, multicenter, retrospective study to assess the impact of nephrectomy in the evolution of the second renal transplantation.  
PI: Alberto Rodríguez Benot

0271/10: An open, multicenter, randomized, parallel-group, phase III study to compare the effectiveness and safety of the Mycophenolic-prednisone-Ac-Ac cyclosporin prednisone pattern versus the Mycophenolic-Cyclosporine Prednisone-Ac Mycophenolic pattern  
PI: Mario Espinosa Hernández

0242/10: An open, multicenter, trial of eculizumab in adult patients with atypical hemolytic uremic syndrome.  
PI: Mario Espinosa Hernández

0256/10: An open, multicenter, randomized, two-arm trial to investigate de novo diabetes mellitus in renal transplant recipients receiving an adgraf-based immunosuppressive regime  
PI: Alberto Rodríguez Benot

1734: An observational, retrospective review of medical records to analyze changes in calcium levels after the administration of cinacalcet in patients with persistent secondary hyperparathyroidism after renal transplantation  
PI: Alberto Rodríguez Benot

1727: A retrospective observational study of the characteristics and clinical impact of early anemia in renal transplantation  
PI: Alberto Rodríguez Benot

1761: A multicenter, epidemiological, prospective, observational study to assess the incidence of cytomegalovirus-induced disease and associated risk factors in Receptor + renal transplant recipients  
PI: María Dolores Navarro Cabello

1762: National Registry of Humoral Rejection: An epidemiological, multicenter, observational, prospective study to assess the clinical, serological and histological characteristics and five-year evolution of humoral rejection after renal transplantation in Spain.  
PI: María Luisa Agüera Morales

1702: A study to assess the incidence of diffuse lymphoproliferative disease after renal transplantation in different decades  
PI: Alberto Rodríguez Benot

1757: A post-marketing observation study to monitor the clinical use of Renvela® in hyperphosphatemic adult patients with chronic renal failure not receiving dialysis with serum phosphorus concentrations > 1.78 mmol / l  
PI: Sagrario Soriano Cabrera

0209/11: Effect of Paricalcitol on albuminuria, inflammation and fibrosis in patients with chronic proteinuric renal disease: A randomized controlled trial  
PI: Sagrario Soriano Cabrera

1855: A multicenter, prospective, observational study to analyze progression factors in chronic renal disease in diabetic patients vs non-diabetic patients

PI: Rafael Santamaria Olmo

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1747: Impact of screening, monitorization and reduction of immunosuppression in the viral replication and incidence of VBK-associated nephropathy

PI: Alberto Rodríguez Benot

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1971: A multicenter, retrospective, observational study to assess long-term renal function in renal transplant recipients converted from a tacrolimus-based immunosuppressive treatment of immediate release (Prograf) to tacrolimus

PI: Alberto Rodríguez Benot

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0174/09: An open, multicenter, placebo-controlled study of eculizumab in adolescent patients with atypical hemolytic uremic syndrome respondent to plasma therapy

PI: Mario Espinosa Hernández

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## Lung Transplants. Thoracic Neoplasms

Associated Researcher: Ángel Salvatierra Velázquez [angel.salvatierra.sspa@juntadeandalucia.es](mailto:angel.salvatierra.sspa@juntadeandalucia.es)

### Scientific Activity

Our research activity is focused on the effect of different molecules on lung preservation for transplantation. Additionally, we study the mechanism of chronic lung rejection and its effect on the regulation of different molecules. In our studies on lung preservation and chronic lung rejection we investigate the biological effects of different molecules especially serine-protease inhibitors on oxidative stress, inflammation, the endothelial function and cell signaling mechanisms.

### Keywords

Lung preservation, chronic rejection, bronchiolitis obliterans, endothelium, inflammation, oxidative stress, proteomics, genomics

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Salvatierra	Velázquez	Ángel	AR	Researcher
Algar	Algar	Francisco Javier	R	Researcher
Álvarez	Kindelán	Antonio	R	Researcher
Ayala	Montoro	José	R	Researcher
Baamonde	Laborda	Carlos	R	Researcher
Cerezo	Madueño	Francisco	R	Researcher
Espinosa	Jiménez	Dionisio	R	Researcher
Illana	Wolf	Jennifer	R	Researcher
Moreno	Casado	Paula	R	Researcher
Redel	Montero	Javier	R	Researcher
Santos	Luna	Francisco	R	Researcher
Vaquero	Barrios	Jose Manuel	R	Researcher

(\*) AR: Associated Researcher; R: Researcher

## Research Projects

Project Name: Search for biomarkers in sweat for the diagnosis of lung cancer (Ángel Salvatierra)  
 Funding body: Fundación Neumosur  
 File Number: Neumosur 4

## Clinical trials

0114/10: A multicenter, randomized study of first-line treatment combined with Ambrisentan and tadalafil in subjects with pulmonary hypertension

PI: Francisco Santos Luna

0013/08: Post-marketing observational monitoring programme of Ambrisentan. VOLT study.

PI: Francisco Santos Luna

1: Pulmonary hypertension-associated risk factors (PHI study)

PI: José Manuel Vaquero Barrios

0117/10: A multicenter, randomized, double-blind, placebo-controlled phase II trial to investigate the effectiveness and safety of liposomal aerosolized cyclosporine 10 and 20 mg daily (L-CsA)

PI: José Manuel Vaquero Barrios

1641: Perception of renal dysfunction perception in maintenance lung transplant patients.

PI: Francisco Santos Luna



## Comprehensive Nursing Care. Multidisciplinary Perspective

Head Researcher: M<sup>a</sup> Aurora Rodríguez Borrego. [en1robom@uco.es](mailto:en1robom@uco.es)

PAIDI Group CTS-666

### Scientific Activity

The scientific activity of this research group is based on four basic principles that allow flexibility in the composition of and topics addressed by this group. The four basic principles are:

1. To promote research activity among nursing professionals to foster evidence-based nursing care practice. This Group is a vehicle for nursing professionals interested in research.
2. To promote the professional development of nursing professionals by generating knowledge that serves as a guideline for nursing care practice.
3. To make a commitment to provide scientific training for future nursing professionals
4. To adopt a comprehensive and integral approach to how the human being experiences health and disease.

### Keywords

Integral nursing care, nursing care philosophy, professional development of nursing professionals, assessment of training methods in Higher Education, nursing service management, evidence-based nursing care, health and disease, disease experience, health communication, integral human being, female nurses, healthcare in old age

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Rodríguez	Borrego	M <sup>a</sup> Aurora	AR	Researcher
Alanís	Lopezosa	Joaquín	R	Researcher
Arce	Rodríguez	Susana	R	Researcher
Cuevas	Pareja	Francisca	R	Researcher
De Frutos	Delgado	Carmen	R	Researcher
De Miguel	Fernández	Magdalena	R	Researcher
Delgado	Márquez	M <sup>a</sup> Jesús	R	Researcher
García	Montero	Manuel	R	Researcher
Gonçalves	Nitschke	Rosane	R	Researcher
Medina	Valverde	M <sup>a</sup> José	R	Researcher
Méndez	Serrano	Beatriz	R	Researcher
Miñarro	Del Moral	Rosa	R	Researcher
Moros	Molina	M <sup>a</sup> Del Pilar	R	Researcher
Parra	Perea	Julia	R	Researcher
Peñas	Maldonado	Luis	R	Researcher
Redondo	Pedraza	Rosa	R	Researcher
Vaquero	Abellán	Manuel	R	Researcher
Dios	Guerra	Caridad	TR	Researcher
De La Torre	Barbero	M <sup>a</sup> José	TR	Researcher
Flórez	Almonacid	Clara Inés	TR	Researcher
Guerra	Martín	M <sup>a</sup> Dolores	TR	Researcher
Marín	Sánchez	Juana	TR	Researcher
Muñoz	Alonso	Adoración	TR	Researcher
Fernández	Rodríguez	Vicente	TR	Researcher
Hidalgo	Lopezosa	Pedro	TR	Researcher
Luna	Martín	Antonio Jesús	AT	Auxiliary Technician

(\*) AR: Associated Researcher; R: Researcher; TR: Trainee Researcher

## Publications

Carrasco M, Vaquero M. Water training in postmenopausal women: Effect on muscular strength. *European Journal of Sport Science*. 2012; 12(2):193-200.  
IF: 0.976

Rodriguez-Borrego MA, Vaquero-Abellán M, da Rosa LB. A cross-sectional study of factors underlying the risk of female nurses' suffering abuse by their partners. *Revista Latino-Americana de Enfermagem*. 2012; 20(1): 11-18.  
IF: 0.625

Espejo MO, Campos MG, Villanueva MCM, Naveiro JLP. Metabolic changes in prepuberty children with extrauterine growth restriction. *Anales de Pediatría*. 2012; 77(4):247-253.  
IF: 0.77

Llorente-Cantarero FJ, Perez-Navero JL, Benitez-Sillero JD, Munoz-Villanueva MC, Guillen-del Castillo M, Gil-Campos M. Non-traditional markers of metabolic risk in prepubertal children with different levels of cardiorespiratory fitness. *Public Health Nutrition*. 2012; 15(10): 1827-1834.  
IF: 2.169

Llorente-Cantarero FJ, Gil-Campos M, Benitez-Sillero JD, Munoz-Villanueva MC, Tunes I, Perez-Navero JL. Prepubertal children with suitable fitness and physical activity present reduced risk of oxidative stress. *Free Radical Biology & Medicine*. 2012; 53(3): 415-420.  
IF:5.423

## Research Projects

Project Name: Assessing the specific compe-

tence of the Bachelor's Degree in Nursing (CET 3), common in the courses: Basic Nursing Care and Practicum I (Hospital, General Care) Understanding and applying nursing theoretical and methodological fundamentals ( M<sup>a</sup> Aurora Rodríguez Borrego)

Funding body: University of Córdoba. Project to improve teaching quality. 13th Call.  
File Number: 113005

Project Name: Feedforward: tutoring and evaluating learning in cooperative groups (M<sup>a</sup> Aurora Rodríguez Borrego)

Funding body: University of Córdoba. Project to improve teaching quality. 1st Call of the Educational Innovation Plan  
File Number: 123078  
2013 Annuity



## Pneumology

Associated Researcher: Bernabé Jurado Gámez. [bjg01co@hotmail.com](mailto:bjg01co@hotmail.com)

### Scientific Activity

Our line of research is focused on three key points, the effect of hypoxemia on metabolism and lung cancer, early diagnosis of lung cancer and the effect of new drugs and respiratory therapies basing on new technologies (TICs).

Objectives:

1. The effect of hypoxemia, chronic or intermittent on metabolism and vascular impact.
2. Search for markers basing on new technologies (metabolomics, proteomics, epigenetics) for early diagnosis of lung cancer.
3. Application of metabolomics in the development of new drugs in chronic respiratory diseases (EPOC, asthma, HPP, FQ).
4. Application of TICs in the diagnosis and control of respiratory disease.

In addition, our research team collaborates in the investigation on the effect of intermittent hypoxemia with the research group of Dr. José López Miranda in patients with vascular risk factors to determine the impact of hypoxemia on the effect of Mediterranean diet and vascular risk.

With the research group of Dr. Teresa Roldán Arjona (epigenetics), Dr. Antonio Rodríguez Ariza (Coordinator of the Oncover group) and Dr M. Dolores Luque de Castro (metabolomics and proteomics) in the identification and quantification of compounds useful in the diagnosis of lung cancer in exhaled breath condensate. In this line, this group also collaborates with the research group of Dr M. Dolores Luque de Castro in the performance of metabolomic studies for the identification of clinical phenotypes in exhaled breath condensate, and in the search for new lung cancer markers in different biological fluids.

### Keywords

Cancer, hypoxemia, cell damage, chronic respiratory disease, epigenetics, metabolomics, proteomics, telecare, telemedicine, respiratory therapies.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Jurado	Gámez	Bernabé	AR	Researcher
Arenas	de Larriva	Marisol	R	Researcher
Arenas	Vacas	Antonio	R	Researcher
Caballero	Ballesteros	Laura	R	Researcher
Cosano	Povedano	Javier	R	Researcher
Entrenas	Costa	Luis Manuel	R	Researcher
Fernández	Marín	M Carmen	R	Researcher
Feu	Collado	Nuria	R	Researcher
García	Porcuna	Inmaculada	R	Researcher
García	Gil	Francisco Luis	R	Researcher
Lama	Martínez	Rafael	R	Researcher
Martín	Pérez	Miguel Ángel	R	Researcher
Muñoz	Cabrera	Luis	R	Researcher
Pascual	Martínez	Natalia	R	Researcher

(\*)AR: Associated Researcher R: Researcher;

## Publications

Jurado-Gamez B, Cabrera CB, Ballesteros LC, Hinojosa CM, Cabrera LM, Perez-Jimenez F, Lopez-Miranda J. Association of cellular adhesion molecules and oxidative stress with endothelial function in obstructive sleep apnea. *Internal Medicine*. 2012; 51(4):363-368.  
IF: 0.936

Jurado-Gamez B, Gomez-Chaparro JL, Munoz-Calero M, Serna Sanz A, Munoz-Cabrera L, Lopez-Barea J, Gozal D. Serum proteomic changes in adults with obstructive sleep apnoea. *Journal of Sleep Research*. 2012; 21(2):139-146.  
IF: 3.157

Soriano JB, Miravittles M, García-Ríos F, Muñoz L, Sánchez G, Sobradillo V, Durán E, Guerrero D, Ancochea J. Spirometrically-defined restrictive ventilatory defect: Population variability and individual determinants. *Prim Care Respir J*. 2012; 21: 187-193.

## Research Projects

Project Name: Impact of respiratory disorders during sleep on subclinical markers of peripheral artery in patients with ischemic cardiopathy (Bernabé Jurado Gámez)  
Funding body: Asociación neumólogos del Sur (Neumologists Association). Neumosur Foundation

Project Name: Diagnostic contribution of proteomic analysis in selective bronchoaspirate in lung cancer patients (Marisol Arenas de Larriva)  
Funding body: Asociación neumólogos del Sur (Neumologists Association). Neumosur Foundation

## Collaboration Agreements

Project Name: Study on the effect of an exercise programme in the severity of SAHS in the modification in vascular risk factors. (Bernabé Jurado Gámez)  
Funding body: Linde Medicinal

# AREA B

## Nutrition, Metabolism and Neuroendocrinology

Coordinator: M<sup>a</sup> del Mar Malagón Poyato

- B-01** Hormones and Cancer

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- B-02** Nutrigenomics. Metabolic Syndrome

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- B-03** Hormonal Regulation of Energy Balance, Puberty and Reproduction

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- B-06** Metabolism and Adipocyte Differentiation. Metabolic Syndrome

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- B-08** Epidemiological Research in Primary Care

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- B-09** Calcium Metabolism. Vascular Calcification

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- Bas-02** Endocrinology and Nutrition. Insulin Resistance, Diabetes and Metabolism

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- Bas-03** Study of Growth. Endocrinology and Child Nutrition

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- Bas-05** Clinical Analysis

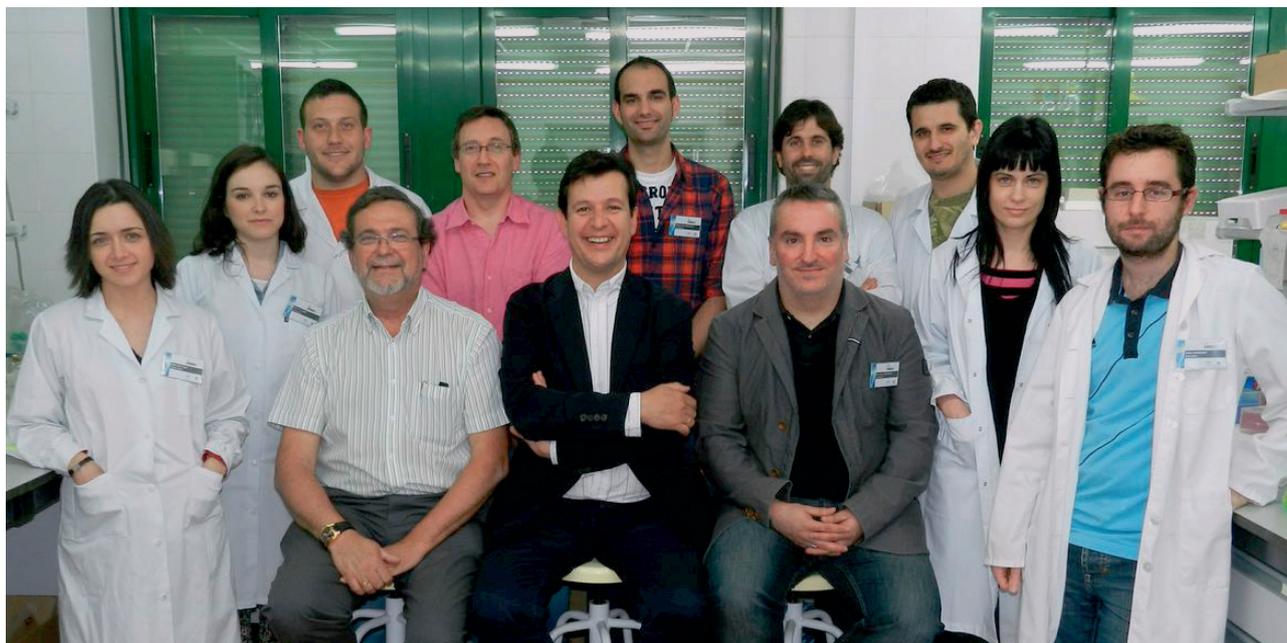
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- BE-05** Oxidative Stress and Nutrition

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- BE-07** Child Metabolism





## Hormones and Cancer

**Head Researcher:** Justo P. Castaño Fuentes. [justo@uco.es](mailto:justo@uco.es)

CIBER on Obesity and Nutrition (CIBERObn) (Collaborator)

**Co- Head Researcher 1:** Francisco Gracia Navarro

PAIDI Group BIO-139

**Co- Head Researcher 2:** Raúl M. Luque Huertas

### Scientific Activity

Our group investigates the cellular and molecular principles underlying the natural processes of neuroendocrinometabolic regulation and their dysfunctions in tumour diseases and cancer, paying special attention to the role played by some neuropeptide systems such as somatostatin, cortistatin, ghrelin, kisspeptins and their receptors. Starting from the study of pituitary somatotropes producing the growth hormone (GH), our group has developed a Research Area focused on the analysis of extracellular signals (somatostatin, cortistatin, GHRH, ghrelin, Kisspeptins, etc.), receptors (sst1-5, GHRH-R, GHS-R, Kiss1r) and signalling pathways involved in the regulation of this cell type, as well as other endocrine cell types (eg corticotropes, gonadotropes, pancreatic beta cells) and the global role of these molecules in metabolic homeostasis and the development of tumour pathologies.

To achieve this, we use a wide range of techniques, including primary cultures of normal and tumour cells, cell lines, genetically modified animals, hormone secretion measurements, second messengers and gene expression, dynamics association/dissociation studies and membrane protein trafficking using FRET, confocal microscopy in living cells, and so on. Our studies have led to the discovery and characterization of new receptors, functions and mechanisms of action for different neuroendocrinometabolic signals and drugs involved in the control of hormone secretion, tumorigenesis, or cell survival and death in various normal and pathological cell types (eg, pituitary tumours, breast cancer, diabetes, obesity), with the ultimate aim of contributing to the future design of innovative therapeutic strategies.

## Keywords

Cellular and Molecular Endocrinology. Hypothalamic-hypophysis. Somatostatin, cortistatin, ghrelin, GHRH and Kisspeptins and their receptors. Expression and secretion of hormones (GH, LH) and intracellular signalling systems. Regulation of the somatotrophic and gonadotropic-reproductive axes. Hypophysary tumours. Breast cancer.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Castaño	Fuentes	Justo Pastor	HR	Researcher
Gracia	Navarro	Francisco	CO-HR	Researcher
Luque	Huertas	Raúl Miguel	CO-HR	Researcher
Martínez	Fuentes	Antonio Jesús	R	Researcher
Gahete	Ortiz	Manuel David	PDR	Researcher
Córdoba	Chacón	José	PDR	Researcher
López	Sánchez	Laura María	PDR	Researcher
Moreno	Herrera	Antonio	PDR	Researcher
Chanclón	García	Belén	TR	Researcher
Ibáñez	Costa	Alejandro	TR	Researcher
Villa	Osaba	Alicia	TR	Researcher
Rincón	Fernández-Pacheco	David	TR	Researcher
Hormaechea	Agulla	Daniel	TR	Researcher
López	Argüello	Silvia Daiana	TR	Researcher
Pozo	Salas	Anabel	AT	Auxiliary Technician
Rivero	Cortes	Esther	AT	Auxiliary Technician
Gómez	Elices	María Amparo	AO	Administrative Officer

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher; R: Researcher; PDR: Post-doctoral Researcher; TR: Trainee Researcher

## Publications

Granata R, Gallo D, Luque RM, Baragli A, Scarlatti F, Grande C, Gesmundo I, Cordoba-Chacon J, Bergandi L, Settanni F, Togliatto G, Volante M, Garetto S, Annunziata M, Chanclon B, Gargantini E, Rocchietto S, Matera L, Data G, Morino M, Brizzi MF, Ong H, Camussi G, Castaño JP, Papotti M, Ghigo E. Obestatin regulates adipocyte function and protects against diet induced insulin resistance and inflammation. *Faseb Journal*. 2012; 26(8);3393-3411. IF: 5,712

Cordoba-Chacon J, Gahete MD, Pozo-Salas AI, Moreno-Herrera A, Castaño JP, Kineman RD, Luque RM. Peripubertal onset but not adult-onset obesity increases IGF-I and drives development of lean mass, which may lessen the metabolic impairment in adult obesity. *American Journal of Physiology-Endocrinology and Metabolism*. 2012; 303(9); E1151-E1157. IF: 4,746

Li SC, Martijn C, Cui T, Essaghir A, Luque RM, Demoulin JB, Castaño JP, Oberg K, Giandomenico V. The Somatostatin Analogue Octreotide Inhibits Growth of Small Intestine Neuroendocrine Tumour Cells. *Plos One*. 2012; 7(10);e48711. IF: 4,092

Duran-Prado, Mario, Gahete, Manuel D, Delgado-Niebla, Elena; Martinez-Fuentes, Antonio J; Vazquez-Martinez, Rafael; Garcia-Navarro, Socorro; Gracia-Navarro, Francisco; Malagon, Maria M, Luque, Raul M, Castaño, Justo P. Truncated variants of pig somatostatin receptor subtype 5 (sst5) act as dominant-negative modulators for sst2-mediated signaling. *American Journal of Physiology-Endocrinology and Metabolism*. 2012; 303(11);E1325-E1334. IF: 4,746

Cordoba-Chacon J, Gahete MD, Castaño JP, Kineman RD, Luque RM. Homologous and Heterologous in Vitro Regulation of Pituitary Receptors for Somatostatin, Growth Hormone (GH)-

Releasing Hormone, and Ghrelin in a Nonhuman Primate (*Papio anubis*). *Endocrinology*. 2012; 153(1);264-272. IF: 4.459

Gonzalez CR, de Morentin PBM, Martinez-Sanchez N, Gomez-Diaz C, Lage R, Varela L, Dieguez C, Nogueiras R, Castaño JP, Lopez M. Hyperthyroidism differentially regulates neuropeptide S system in the rat brain. *Brain Research*. 2012; 1450;40-48. IF: 2.728

Gonzalez CR, Novelle MG, Caminos JE, Vazquez MJ, Luque RM, Lopez M, Nogueiras R, Dieguez C. Regulation of lipin1 by nutritional status, adiponectin, sex and pituitary function in rat white adipose tissue. *Physiology & Behavior*. 2012; 105(3);777-783. IF: 2.869

Annunziata M, Luque RM, Duran-Prado M, Baragli A, Grande C, Volante M, Gahete MD, Deltetto F,

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IF: 4.459

Duran-Prado M, Gahete MD, Hergueta-Redondo M, Martinez-Fuentes AJ, Cordoba-Chacon J, Palacios J, Gracia-Navarro F, Moreno-Bueno G, Malagon MM, Luque RM, Castaño JP. The new truncated somatostatin receptor variant sst5TMD4 is associated to poor prognosis in breast cancer and increases malignancy in MCF-7 cells. *Oncogene*. 2012; 31(16):2049-2061.  
IF: 3.673

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IF: 3.948

Cruz-García, D.; Díaz-Ruiz, A.; Rabanal-Ruiz, Y.; Peinado, J.R.; Gracia-Navarro, F.; Castaño, J.P. ; Montero-Hadjadje, M.; Tonon, M.C.; Vaudry, H.; Anouar, Y.; Vázquez-Martínez, R.; Malagón, M.M. The Golgi-associated long coiled-coil protein NECC1 participates in the control of the regulated secretory pathway in PC12 Cells. *Biochemical Journal*. 2012; 443: 387-396.  
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IF: 3.68

Vázquez-Martínez, R.; Díaz-Ruiz, A.; Almabouada, F.; Rabanal-Ruiz, Y.; Gracia-Navarro, F.; Malagón, M.M. Revisiting the regulated secretory pathway: from frogs to human. *General and Comparative Endocrinology*. 2012; 175(1):1-9.  
IF: 3.267

## Research Projects

Project Name: Translational research on neuroendocrine tumors: molecular bases, new signals and therapeutic opportunities (Justo Pastor Castaño Fuentes)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P09-CTS-5051

Project Name: Role of Somatostatin, cortistatina and ghrelin in the pathological interaction between obesity and breast cancer (Justo Pastor Castaño Fuentes)  
Funding body: MICINN  
File Number: BFU2010-19300

Project Name: Functional role and therapeutic potential of aberrant splicing variants of the ghrelin system (in1-ghrelin/ghs-r1b) and of the somatostatin receptor 5 (sst5tmd4 / 5) in pituitary tumors and in breast and prostate cancer (Raúl M Luque)  
Funding body: Regional Department of Health and Social Welfare  
File Number: PI-0639-2012  
2013 Annuity

## Collaboration Agreements

Project Name: Characterization of new receptors for somatostatin and cortistatin (Justo Pastor Castaño Fuentes)  
Funding body: Ipsen Biomeasure. Scras S.A.S, Paris, France  
File Number: CCB.UCO0032

Project Name: Molecular study of pituitary tumors (Justo Pastor Castaño Fuentes)  
Funding body: Andalusian Society of Endocrinology and Nutrition - Novartis  
File Number: CCB.UCO0031

Project Name: Service and exclusive negotiation agreement between University of Cordoba and Ipsen Pharma with respect to the workplan in1-ghrelin, a novel aberrantly spliced ghrelin variant, goat, ghsr1a and ghsr1b in neuroendocrine tumors, prostate cancer and cushing's disease: presence, function and therapeutics (Raul Miguel Luque Huertas)  
Funding body: Ipsen Pharma S.A.S  
File Number: 12012067

Project Name: Service and exclusive negotiation

agreement between University of Cordoba and Ipsen Pharma with respect to the workplan Truncated sst5tmd4/5 receptors in neuroendocrine tumors, prostate cancer and cushing's disease: functional roles and potential therapeutic value (Justo Pastor Castaño Fuentes)  
Funding body: Ipsen Pharma S.A.S  
File Number: 12012068





## Nutrigenomics. Metabolic Syndrome

**Head Researcher:** José López Miranda. [jlopezmir@gmail.com](mailto:jlopezmir@gmail.com)

CIBER on Obesity and Nutrition (CIBERObn). PAIDI Group CTS-525

**Co-Head Researcher:** Francisco Pérez Jiménez. Scientific Director

PAIDI Group CTS-212

### Scientific Activity

Our group studies the effect of dietary components on cardiovascular risk from a dual approach: nutrigenetics and their biological action on factors and mechanisms related to the development of atherosclerosis, preferably in patients with metabolic syndrome. Through nutrigenetics, we investigate how common genetic variants modulate the influence of diet on markers such as postprandial metabolism, endothelial function, obesity or glucose metabolism. While investigating their biological effects, we analyze the action of nutrients on atherogenic mechanisms such as oxidative stress, inflammation, endothelial function, hemostasis, cellular signalling mechanisms and the activation of genes involved in atherogenesis.

### Keywords

Atherosclerosis, metabolic syndrome, Mediterranean diet, endothelium, inflammation, oxidative stress, cholesterol, polyphenols, gene expression, proteomics, nutrigenetics, nutrigenomics.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
López	Miranda	José	HR	Researcher
Pérez	Jiménez	Francisco	CO-HR	Scientific Director
Blanco	Molina	M <sup>a</sup> Angeles	R	Researcher
Delgado	Casado	Nieves	R	Researcher
Delgado	Lista	Francisco Javier	R	Researcher
Fernández		Juan Marcelo	R	Researcher
Fernández	De La Puebla	Rafael Ángel	R	Researcher
Fuentes	Jiménez	Francisco	R	Researcher
García	Ríos	Antonio	R	Researcher
Montero	Pérez-Barquero	Manuel	R	Researcher
Pérez	Martínez	Pablo	R	Researcher
Rangel	Zuñiga	Oriol Alberto	R	Researcher
Sánchez	García	Esther	R	Researcher
Torres	Roldán	Amalia	R	Researcher
Yubero	Serrano	Elena	R	Researcher
Alcalá	Díaz	Juan Francisco	TR	Researcher
Criado	García	Juan	TR	Researcher
Cruz	Teno	Cristina	TR	Researcher
Gámez	Del Estal	M del Mar	TR	Researcher
González	De La Guardia	Lorena (IV)	TR	Researcher
Haro	Mariscal	Carmen María (III)	TR	Researcher
Jiménez	Morales	Anabel	TR	Researcher
Meneses	Álvarez	M <sup>a</sup> Eugenia	TR	Researcher
Navarro	Martos	Vanesa	TR	Researcher
Peña	Orihuela	Patricia Judith	TR	Researcher
Pérez	Caballero	Anabel	TR	Researcher
Pérez	Herrera	Aleyda	TR	Researcher
Quintana	Navarro	Gracia M <sup>a</sup>	TR	Researcher
Camargo	García	Antonio	PDR	Researcher
Gahete	Ortiz	Manuel David (I)	PDR	Researcher
Gómez	Luna	Purificación	PDR	Researcher
Marín	Hinojosa	Carmen (II)	PDR	Researcher
Carreras	Calero	Rosario	AT	Auxiliary Technician

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher; R: Researcher; PDR: Post-doctoral researcher; TR : Trainee Researcher. (I) Contrat Sara Borrel. (II) Contrat Miguel Servet. (III) Contrat PFIS. (IV) Contrat FPI

## Publications

Garcia-Rios A, Perez-Martinez P, Delgado-Lista J, Phillips CM, Gjelstad IMF, Wright JW, Karlstrom B, Kieć-Wilk B, van Hees AMJ, Helal O, Polus A, Defoort C, Riserus U, Blaak EE, Lovegrove JA, Drevon CA, Roche HM, Lopez-Miranda J. A Period 2 Genetic Variant Interacts with Plasma SFA to Modify Plasma Lipid Concentrations in Adults with Metabolic Syndrome. *Journal of Nutrition*. 2012; 142(7):1213-1218. IF: 3.916

Lozano A, Perez-Martinez P, Delgado-Lista J, Marin C, Cortes B, Rodriguez-Cantalejo F, Gomez-Luna MJ, Cruz-Teno C, Perez-Jimenez F, Lopez-Miranda J. Body mass interacts with fat quality to determine the postprandial lipoprotein response in healthy young adults. *Nutrition, Metabolism and Cardiovascular Diseases*. 2012; 22(4):355-361. IF: 3.731

Cruz-Teno C, Perez-Martinez P, Delgado-Lista J, Yubero-Serrano EM, Garcia-Rios A, Marin C, Gomez P, Jimenez-Gomez Y, Camargo A, Rodriguez-Cantalejo F, Malagon MM, Perez-Jimenez F, Roche HM, Lopez-Miranda J. Dietary fat modifies the postprandial inflammatory state in subjects with metabolic syndrome: the LIPGENE study. *Molecular Nutrition & Food Research*. 2012; 56(6):854-865. IF: 4.301

Santos-Gonzalez M, Lopez-Miranda J, Perez-Jimenez F, Navas P, Villalba JM. Dietary oil modifies the plasma proteome during aging in the rat. *Age*. 2012; 34(2):341-358. IF: 3.948

Perez-Martinez P, Perez-Caballero AI, Garcia-Rios A, Yubero-Serrano EM, Camargo A, Gomez-Luna MJ, Marin C, Gomez-Luna P, Dembinska-Kiec A, Rodriguez-Cantalejo F, Tinahones FJ, Roche HM, Perez-Jimenez F, Lopez-Miranda J, Delgado-Lista J. Effects of rs7903146 Variation in the Tcf7L2 Gene in the Lipid Metabolism of Three Different Populations. *Plos One*. 2012; (8);n° 43390- IF: 4.092

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Bermudez V, Pacheco M, Rojas J, Cordova E, Velazquez R, Carrillo D, Parra MG, Toledo A, Anez R, Fonseca E, Marcano RP, Cano C, Miranda JL. Epidemiologic Behavior of Obesity in the Maracaibo City Metabolic Syndrome Prevalence Study. *Plos One*. 2012; 7(4):e35392. IF: 4.092

Camargo A, Delgado-Lista J, Garcia-Rios A, Cruz-Teno C, Yubero-Serrano EM, Perez-Martinez P, Gutierrez-Mariscal FM, Lora-Aguilar P, Rodriguez-

Cantalejo F, Fuentes-Jimenez F, Tinahones FJ, Malagon MM, Perez-Jimenez F, Lopez-Miranda J. Expression of proinflammatory, proatherogenic genes is reduced by the Mediterranean diet in elderly people. *British Journal of Nutrition*. 2012; 108(3):500-508. IF: 3.013

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Marin C, Delgado-Lista J, Ramirez R, Carracedo J, Caballero J, Perez-Martinez P, Gutierrez-Mariscal FM, Garcia-Rios A, Delgado-Casado N, Cruz-Teno C, Yubero-Serrano EM, Tinahones F, Malagon MM, Perez-Jimenez F, Lopez-Miranda J. Mediterranean diet reduces senescence-associated stress in endothelial cells. *Age*. 2012; 34(6):1309-1316. IF: 3.948

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## Research Projects

Project Name: Compensation agreement (Francisco Pérez Jiménez)  
Funding body: Spanish Ministry of Science and Innovation  
File Number: MCI.CIBEREHD

Project Name: Genetic determinants of cardiovascular disease risk in familial hypercholesterolemia (Francisco Pérez Jiménez)  
Funding body: National Center for Cardiovascular Research  
File Number: CNIC 08/2008

Project Name: Effect of variations in genes related to insulin resistance, lipid metabolism and inflammation on the postprandial state of patients with metabolic syndrome. (Francisco Javier Delgado Lista)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0252/2009

Project Name: Effects of an olive-oil rich Mediterranean diet on the regenerative capacity of the endothelium in older adults. José López Miranda.  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0193/2009

Project Name: Nutrigenomics of adipocyte inflammatory response in patients with metabolic

syndrome. Comparative effect of a Mediterranean diet rich in monounsaturated fat on tissue diffusion (Jose Lopez Miranda)  
Funding body: Spanish Ministry of Science and Innovation  
File Number: AGL2009-12270

Project Name: Nutrigenetics of lipid and inflammatory response in patients with metabolic syndrome. Comparative effect of a Mediterranean diet rich in olive oil versus a low-fat diet: cordioprev study (Pablo Pérez Martínez)  
Funding body: Carlos III Health Institute  
File Number: 10/01041

Project Name: Biomodulatory effects of olive oil on the molecular mechanisms of inflammation and oxidative stress in patients with metabolic syndrome. (Francisco Pérez Jiménez)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: PO9-CTS-5015

Project Name: Characterization of the genetic architecture of metabolic syndrome related to the inflammatory response and interaction with the Mediterranean diet. (Pablo Pérez Martínez)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0058/2010

Project Name: Influence of the bacterial population of the digestive system (microbiota) in the degree of endotoxemia, inflammation and insulin resistance in patients with metabolic syndrome after two healthy diet regimes: low fat and Mediterranean. (Francisco Pérez Jiménez)  
Funding body: Carlos III Health Institute  
File Number: 10/02412

Project Name: Effect of the Mediterranean diet rich in olive oil on coronary risk reduction in patients with ischemic cardiopathy (Cordioprev).  
Funding body: The Foundation Center of excellence in research on olive oil and health, The Province of Córdoba and Jaén, and Progress and Health Foundation.  
File Number: NCT00924937

Project Name: Application of new technologies and tools to nutrition research-the example of phenotypic flexibility. NUTRITECH. (José López Miranda)  
Funding body: European Union 7th Framework Program  
File Number: FP7-KBBE-2011-5

Project Name: Evaluation and Characterization of Coronary Atherosclerosis (Francisco Fuentes Jiménez)  
Funding body: Carlos III Health Institute  
File Number: PI12/01461  
2013 Annuity

Project Name: Nutrigenomic Analysis of the effect of a Mediterranean diet rich in virgin olive oil on endothelial damage and regenerative capacity and its predictive value in cardiovascular risk (Jose Lopez Miranda)  
Funding body: Regional Ministry of Innovation, Science and Business

File Number: CVI-7450  
2013 Annuity

Project Name: Effect of a Mediterranean diet rich in virgin olive oil on the risk and incidence of Type 2 Diabetes Mellitus: Cordioprev-Diab study (Jose Lopez Miranda).  
Funding body: Spanish Ministry of Economy and Competitiveness  
File Number: AGL2012-39615  
2013 Annuity

## Provision of Services to third parties

Project Name: R & D contract between the Andalusian Design Technology Center and the Foundation for Biomedical Research of Cordoba for conducting a research project. (Francisco Pérez Jiménez)  
Funding body: Foundation Center Design Andalusian Technology  
File Number: PSS.0001

Project Name: Merck Serono research grant to the study: Characterization of the genetic architecture of metabolic syndrome related to the inflammatory response and interaction with the Mediterranean diet (Pablo Pérez Martínez)  
Funding body: Health Foundation 2000  
File Number: PSS.0004

Project Name: Participation of the Group PAIDI CTS-525 in the CAVAX CDTI project (Francisco Pérez Jiménez)  
Funding body: Canvax Biotech S.L.  
File Number: PSS.0006

Project Name: Nutritional Intervention Study to assess the evolution of health benefits derived from the consumption of hake in populations at high cardiovascular risk. PESCANOVA project. (Francisco Pérez Jiménez)  
Funding body: CIBEROBN.  
File Number: PSS.0011

Project Name: Services Agreement TNO- FIBICO (José López Miranda)  
Funding body: Tno Earth, Environmental and LS  
File Number: PSS.0014

## Clinical Trials

0021/08: Two-year extension of a global, multicenter, randomized, placebo-controlled, 76-week study to assess the tolerability and effectiveness of anacetrapib added to an ongoing statin-based treatment  
PI: Francisco Pérez Jiménez

0094/11: A long-term, randomized, parallel-group, double-blind, placebo-controlled phase III assay to assess the safety and effectiveness of eprotirome 50 mg and 100 mg / day in patients with heterozygous familial hypercholesterolemia  
PI: Francisco Fuentes Jiménez

0114/11: A multicenter, placebo-controlled, randomized, double-blind study to assess tolerability and effectiveness of AMG 145 in LDL chole-

terol in patients with heterozygous familial hypercholesterolemia

PI: José López Miranda

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1788: Study of masked hypertension

PI: Francisco Fuentes Jiménez

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0159/11: Open label extension (OLE), controlled, multicenter study to assess the safety and long-term efficacy of AMG 145

PI: José López Miranda

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0267/11: A global, multicenter, double-blind, randomized, parallel-group, placebo-controlled, one-year study to assess the effectiveness and tolerability of Anacetrapib added to an ongoing statin-based treatment

PI: José López Miranda

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0139/12: Multicenter, randomized, double-blind, placebo-controlled study to assess the safety, tolerability and efficacy of AMG 145 in LDL cholesterol in subjects with heterozygous familial hypercholesterolemia

PI: José López Miranda

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0136/12: A multicenter, randomized, double-blind study to assess the safety and efficacy of AMG 145, compared with ezetimibe in hypercholesterolemic subjects intolerant to an effective dose of an HMG-CoA reductase inhibitor

PI: José López Miranda

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0166/12: A multicenter, randomized, double-blind, placebo-controlled study to assess the effect of a further reduction of LDL cholesterol in major cardiovascular events when AMG 145 is used in combination with statins

PI: José López Miranda

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1972: An epidemiological study on the current status of patients with type I Gaucher disease in Spain, as assessed by the Therapeutic Goals MAP (Monitor, Action and Progress) Tool ©

PI: Rafael Angel Fernández de la Puebla Giménez

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0014/12: Long-term safety and tolerability profile of REGN727/SAR236553 in patients at high cardiovascular risk with hypercholesterolemia inadequately controlled with a lipid-modifying therapy: A randomized, double-blind, controlled study.

PI: Francisco Fuentes Jiménez

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0231/12: Evaluation of the clinical effects of cholesteryl ester transfer protein inhibition induced with evacetrapib in patients at a high cardiovascular risk

PI: Francisco Fuentes Jiménez

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2053: Xalia-Xarelto® for initial long-term anticoagulation in venous thromboembolism (VTE)

PI: M<sup>a</sup> Angeles Blanco Molina

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## Hormonal Regulation of Energy Balance, Puberty and Reproduction

Head Researcher: Manuel Tena Sempere. [fi1tesem@uco.es](mailto:fi1tesem@uco.es)

Deputy Scientific Director. CIBER on Obesity and Nutrition (CIBERobn).

PAIDI Group BIO-310

### Scientific Activity

Our research group studies the neuroendocrine mechanisms responsible for the integrated control of food intake, body weight, puberty and reproductive function. By using various analytical methods and animal models, in recent years our group has identified new neuropeptides and hormones involved in the joint regulation of metabolic status and reproduction. Thus, we have made substantial contributions to the characterization of the physiological role, mechanisms of action, and pathophysiological and therapeutic implications of kisspeptins in the control of puberty, ovulation and the secretion of gonadotropins. In addition, we have characterized the actions of different gastrointestinal hormones (ghrelin, PYY) and adipose tissue (leptin, resistin, adiponectin), as well as the control of food intake and reproductive function. Additionally, we have defined the role in the reproductive axis of the different neuropeptides (GALP, neuromedins, 26/43RFa, VGF) primarily involved in the control of food intake. Even when our research activity is basic in nature, this has allowed us to identify mechanisms of action and pharmacological effects of practical interest for a broad group of neuroendocrine factors with the potential translational results in the context of increasingly prevalent diseases such as obesity and other body weight disorders, changes of puberty and various forms of infertility.

### Keywords

Body weight, obesity, puberty, fertility, kisspeptins, GPR54, gonadotropins, GnRH, leptin, ghrelin, adipokines, neuropeptides.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Tena	Sempere	Manuel	HR	Deputy Scientific Director
Gaytán	Luna	Francisco	R	Researcher
Pinilla	Jurado	Leonor	R	Researcher
Pineda	Reyes	Rafael	R	Researcher
Romero	Ruiz	Antonio	R	Researcher
León	Téllez	Silvia	TR	Researcher
Zamora	Pérez	Aurora	TR	Researcher
Barroso	Romero	Alexia	TR	Researcher
García	Galiano	David	TR	Researcher
Heras	Domínguez	Violeta	TR	Researcher
Manfredi	Lozano	María	TR	Researcher
Ruiz	Pino	Francisco	TR	Researcher
Sánchez-Garrido	Nogueras	Miguel	TR	Researcher
Castellano	Rodríguez	Juan	PDR	Researcher
Roa	Rivas	Juan	PDR	Researcher
Vázquez	Villar	María Jesús	PDR	Researcher
Navarro	Loro	Víctor M	PDR	Researcher
Del Espino	Garcia	Araceli	AT	Auxiliary Technician
Gutiérrez	Córdoba	Desiré	AT	Auxiliary Technician
Pedraza	Casado	Ana Belén	AT	Auxiliary Technician
Rodríguez	Sánchez	Ana	AT	Auxiliary Technician
Sánchez	Arroyo	Antonia	AT	Auxiliary Technician

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher; R: Researcher; PDR: Post-doctoral Researcher; TR: Trainee Researcher;

## Publications

García-Galiano D, Pineda R, Ilhan T, Castellano JM, Ruiz-Pino F, Sanchez-Garrido MA, Vazquez MJ, Sangiao-Alvarellos S, Romero-Ruiz A, Pinilla L, Dieguez C, Gaytan F, Tena-Sempere M. Cellular Distribution, Regulated Expression, and Functional Role of the Anorexigenic Peptide, NUCB2/Nesfatin-1, in the Testis. *Endocrinology*. 2012; 153(4):1959-1971.  
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IF: 4.459

Whittle AJ, Carobbio S, Martins L, Slawik M, Hondares E, Vazquez MJ, Morgan D, Csikasz RI, Gallego R, Rodriguez-Cuenca S, Dale M, Virtue S, Villarroja F, Cannon B, Rahmouni K, Lopez M. BMP8B Increases Brown Adipose Tissue Thermogenesis through Both Central and Peripheral Actions. *Cell*. 2012; 149(4):872-875.  
IF: 32.403

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IF: 7.115

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Mueller JK, Koch I, Lomniczi A, Loche A, Rulfs T, Castellano JM, Kiess W, Ojeda S, Heger S. Transcription of the human EAP1 gene is regulated by upstream components of a puberty-controlling Tumor Suppressor Gene network. *Molecular & Cellular Endocrinology*. 2012; 351(2):184-198. IF: 4.192

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Varela L, Martinez-Sanchez N, Gallego R, Vazquez MJ, Roa J, Gandara M, Schoenmakers E, Nogueiras R, Chatterjee K, Tena-Sempere M, Dieguez C, Lopez M. Hypothalamic mTOR pathway mediates thyroid hormone-induced hyperphagia in hyperthyroidism. *Journal of Pathology*. 2012; 227(2):209-222. IF: 6.31

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Fuente-Martin E, Garcia-Caceres C, Granado M, de Ceballos ML, Sanchez-Garrido MA, Sarman

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## Research Projects

Project Name: Translational research in puberty and infertility: analysis of the kiss-system 1 / GPR54 (Manuel Tena Sempere)  
Funding body: Regional Ministry of Innovation,

Science and Business  
File Number: P08-CVI-03788

Project Name: Epipuberty-metabolic control of puberty: role of epigenetic regulatory mechanisms (Manuel Tena Sempere)  
Funding body: European Commission  
File Number: PEOF-GA-2010-273034

Project Name: Puberty: new microRNAs and neuropeptide regulating systems and their interaction with obesity and metabolic signals.  
Funding body: Spanish Ministry of Economy and Competitiveness (MINECO)  
File Number: BFU2011-25021

Project Name: COST-ACTION BM1105: GnRH Deficiency-Elucidation of the Neuroendocrine Control of Human Reproduction (Manuel Tena Sempere)  
Funding body: European Commission

Project Name: PK2-KISS1-Physiological Characterization of PK2 in the Control of Fertility and its Interactions with Kisspeptins (Manuel Tena Sempere)  
Funding body: European Commission.  
File Number: PEOF-GA-2007-219605

Project Name: Meta-GnRH- Metabolic Targeting of GnRH Neurons: Molecular Mechanisms and Neuropeptide Pathways (Manuel Tena Sempere)  
Funding body: European Commission  
File Number: PEOF-GA-2009-235560

## Collaboration Agreements

Project Name: In vivo testing of new NPF- FR1/R2 Antagonist Reference Compound (EXTENSION) (Manuel Tena Sempere)  
Funding body: N V ORGANON  
File Number: CCB.UCO0007





## Metabolism and Adipocyte Differentiation Metabolic Syndrome

Head Researcher: M<sup>a</sup> del Mar Malagón Poyato. [bc1mapom@uco.es](mailto:bc1mapom@uco.es)

CIBER on Obesity and Nutrition (CIBERobn) (Collaborate)

Head Researcher: Francisco Gracia Navarro

PAIDI Group BIO-139

### Scientific Activity

This research group investigates the cellular and molecular mechanisms that control adipose tissue activity. Thus, this group is focused on the central role of adipose tissue in lipid metabolism regulation and in body response to insulin, as well as on its role as an endocrine organ producing a number of signalling molecules. Specifically, this group analyzes the different components of adipose tissue, mature adipocytes and stromal vascular fraction, including the study of pre-adipocytes and adipogenesis. Additionally, this group is interested in other fundamental processes in adipocyte dysfunction, such as intracellular lipid and organelle traffic and their relationship with the cytoskeleton, oxidative stress, inflammation, etc. These studies are performed in the context of disorders associated with adipose-tissue dysfunction, obesity and lipodystrophy that result in the development of metabolic disease. Finally, this group also investigates the interventions that best improve the metabolic profile (bariatric surgery, diet). To address these studies, this group uses multiple experimental approaches such as the application of comparative proteomics to the adipose tissue under different experimental conditions or to other tissues related to the control of metabolism. In addition, gene expression, protein interaction, confocal microscopy, real-time videomicroscopy for the localization of proteins and functional studies of gene overexpression or silencing using primary or cell line cultures are also performed.

### Keywords

Adipose tissue, adipocyte, lipid metabolism, adipogenesis, proteomics, intracellular trafficking, intracellular signaling, adipokines, receptors, obesity, lipodystrophy, insulin resistance, metabolic syndrome.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Malagón	Poyato	María del Mar	HR	Coordinator of Area B
Gracia	Navarro	Francisco	CO-HR	Researcher
Vázquez	Martínez	Rafael	R	Researcher
García	Navarro	Socorro	R	Researcher
Almabouada		Farid	TR	Researcher
Díaz-Ruiz	Ruiz	José Alberto	PDR	Researcher
Moreno	Castellanos	Natalia Rocío	TR	Researcher
Palomo	Buitrago	M <sup>a</sup> de la Encarnación	TR	Researcher
Rabanal	Ruiz	Yoana	TR	Researcher
Travez	García	Andrés	TR	Researcher
Guzmán	Ruiz	Rocío	PDR	Researcher
Molero	Murillo	Laura	AT	Auxiliary Technician
Gómez	Élices	María Amparo	AO	Administrative Officer

(\*) HR: Head Researcher; CO-HR:CO-Head Researcher; R: Researcher; PDR: Post-doctoral Researcher; TR: Trainee Researcher;

## Publications

Rodriguez A, Gomez-Ambrosi J, Catalan V, Rotellar F, Valenti V, Silva C, Mugueta C, Pulido MR, Vazquez R, Salvador J, Malagon MM, Colina I, Fruhbeck G. The ghrelin O-acyltransferase-ghrelin system reduces TNF-alpha-induced apoptosis and autophagy in human visceral adipocytes. *Diabetologia*. 2012; 55(11):3038-3050. IF: 6.814

Tomas M, Marin MP, Martinez-Alonso E, Esteban- Pretel G, Diaz-Ruiz A, Vazquez-Martinez R, Malagon MM, Renau-Piqueras J, Martinez-Menarguez JA. Alcohol induces Golgi fragmentation in differentiated PC12 cells by deregulating Rab1-dependent ER-to-Golgi transport. *Histochemistry and Cell Biology*. 2012; 138(3):489-501. IF: 2.588

Elias S, Delestre C, Ory S, Marais S, Courel M, Vazquez-Martinez R, Bernard S, Coquet L, Malagon MM, Driouch A, Chan P, Gasman S, Anouar Y, Montero-Hadjadje M. Chromogranin A Induces the Biogenesis of Granules with Calcium- and Actin-Dependent Dynamics and Exocytosis in Constitutively Secreting Cells. *Endocrinology*. 2012; 153(9):4444-4456. IF: 4.459

Diaz-Arteaga A, Vazquez MJ, Vazquez-Martinez R, Pulido MR, Suarez J, Velasquez DA, Lopez M, Ross RA, de Fonseca FR, Bermudez-Silva FJ, Malagon MM, Dieguez C, Nogueiras R. The atypical cannabinoid O-1602 stimulates food intake and adiposity in rats. *Diabetes Obesity & Metabolism*. 2012; 14(3):234-243. IF: 3.379

Cruz-Garcia D, Diaz-Ruiz A, Rabanal-Ruiz Y, Peinado JR, Gracia-Navarro F, Castaño JP, Montero-Hadjadje M, Tonon MC, Vaudry H, Anouar Y, Vazquez-Martinez R, Malagon MM. The Golgi-associated long coiled-coil protein NECC1 participates in the control of the regulated secretory pathway in PC12 cells. *Biochemical Journal*. 2012; 443:387-396. IF: 4.897

Moreno-Navarrete JM, Catalan V, Whyte L, Diaz-Arteaga A, Vazquez-Martinez R, Rotellar F, Guzman R, Gomez-Ambrosi J, Pulido MR, Russell WR, Imbernon M, Ross RA, Malagon MM, Dieguez C, Fernandez-Real JM, Fruhbeck G, Nogueiras R. The L-alpha-Lysophosphatidylinositol/GPR55 System and Its Potential Role in Human Obesity. *Diabetes*. 2012; 61(2):281-291. IF: 8.286

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Camargo A, Delgado-Lista J, Garcia-Rios A, Cruz-Teno C, Yubero-Serrano EM, Perez-Martinez P, Gutierrez-Mariscal FM, Lora-Aguilar P, Rodriguez-Cantalejo F, Fuentes-Jimenez F, Tinahones FJ, Malagon MM, Perez-Jimenez F, Lopez-Miranda J. Expression of proinflammatory, proatherogenic genes is reduced by the Mediterranean diet in elderly people. *British Journal of Nutrition*. 2012; 108(3):500-508. IF: 3.013

Chanclón B, Martínez-Fuentes AJ, Gracia-Navarro F. Role of SST, CORT and ghrelin and its receptors at the endocrine pancreas. *Front Endocrinol (Lausanne)*. 2012; 3:114.

Pulido MR, Rabanal-Ruiz Y, Almabouada F, Díaz-Ruiz A, Burrell MA, Vázquez MJ, Castaño JP, Kineman RD, Luque RM, Diéguez C, Vázquez-Martínez R, Malagón MM. Nutritional, hormonal, and depot-dependent regulation of the expression of the small GTPase Rab18 in rodent adipose tissue. *J Mol Endocrinol*. 2012;50(1):19-29.

Duran-Prado M, Gahete MD, Hergueta-Redondo M, Martínez-Fuentes AJ, Córdoba-Chacón J, Palacios J, Gracia-Navarro F, Moreno-Bueno G, Malagon MM, Luque RM, Castaño JP. The new truncated somatostatin receptor variant sst5TMD4 is associated to poor prognosis in breast cancer and increases malignancy in MCF-7 cells. *Oncogene*. 2012; 31(16):2049-2061. IF: 3.673

Duran-Prado, Mario; Gahete, Manuel D; Delgado-Niebla, Elena; Martínez-Fuentes, Antonio J; Vazquez-Martinez, Rafael; García-Navarro, Socorro; Gracia-Navarro, Francisco; Malagon, Maria M; Luque, Raul M; Castaño, Justo P. Truncated variants of pig somatostatin receptor subtype 5 (sst5) act as dominant-negative modulators for sst2-mediated signaling. *American Journal of Physiology-Endocrinology and Metabolism*. 2012; 303(11):0-0. IF: 0.729

Duran-Prado M, Gahete MD, Hergueta-Redondo M, Martínez-Fuentes AJ, Córdoba-Chacón J, Palacios J, Gracia-Navarro F, Moreno-Bueno G, Malagon MM, Luque RM, Castaño JP. The new truncated somatostatin receptor variant sst5T-

MD4 is associated to poor prognosis in breast cancer and increases malignancy in MCF-7 cells. *Oncogene*. 2012; 31(16):2049-2061.  
IF: 3.673

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Peinado JR, Pardo M, de la Rosa O, Malagon MM. Proteomic characterization of adipose tissue constituents, a necessary step for understanding adipose tissue complexity. *Proteomics*. 2012; 12(4-5):607-620.  
IF: 4.505

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Vazquez-Martinez R, Diaz-Ruiz A, Almabouada F, Rabanal-Ruiz Y, Gracia-Navarro F, Malagon MM. Revisiting the regulated secretory pathway: From frogs to human. *General and Comparative Endocrinology*. 2012; 175(1):1-9.  
IF: 3.267

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## Research Projects

Project Name: Cellular and molecular basis of the metabolic syndrome: the effect of dietary fat composition on adipose tissue function (M<sup>a</sup> del Mar Malagón Poyato)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P07-CTS-03039

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Project Name: Characterization of new markers regulating adipose tissue function (M<sup>a</sup> del Mar Malagón Poyato)  
Funding body: MICINN  
File Number: BFU2010-17116

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Project Name: High-performance proteomic approaches to identify markers of adipose tissue obesity. Adipocyte phosphoproteome disorders resulting from insulin resistance (M<sup>a</sup> del Mar Malagón Poyato)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P10-CTS-6606

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## **Epidemiological Research in Primary Care**

**Head Researcher:** Luis Angel Pérula de Torres. [langel.perula.sspa@juntadeandalucia.es](mailto:langel.perula.sspa@juntadeandalucia.es)

Research Network on preventive actions and health promotion in primary care (RedIAPP) PAIDI Group CTS-452

### **Scientific Activity**

Preventive activities, promotion and protection of health in Primary Health Care (PHC). Validation of measuring instruments in PHC. Patient Safety (rational drug use). Communication in health care, clinical interviews. Medical education.

### **Keywords**

Epidemiology, Preventive Medicine and Public Health, Primary Health Care.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Pérula	de Torres	Luis Ángel	HR	Researcher
Ruiz	Moral	Roger (I)	R	Researcher
Acosta	García	María José	R	Researcher
Aguado	Taberné	Cristina	R	Researcher
Alba	Dios	María Antonia	R	Researcher
Blanco	Hungría	Antonio	R	Researcher
Fernández	García	José Ángel	R	Researcher
González	Lama	Jesús	R	Researcher
Jiménez	García	Celia	R	Researcher
Olaya	Caro	Inmaculada	R	Researcher
Parras	Rejano	Juan Manuel	R	Researcher
Pérula	de Torres	Carlos	R	Researcher
Prados	Castillejo	Jose Antonio	R	Researcher
Redondo	Sánchez	Juana	R	Researcher
Ruiz de Castro-viejo	del Campo	Joaquín	R	Researcher
Valero	Martín	Antonio	R	Researcher
Varas	Fabra	Francisco José	R	Researcher
Martín	Rioboó	Enrique	R	Researcher
Ortega	Millán	Carlos	TR	Researcher

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher; R: Researcher; TR: Trainee Researcher  
(I) PAIDI CTS-179 Group

## Publications

Perula LA, Varas-Fabra F, Rodriguez V, Ruiz-Moral R, Fernandez JA, Gonzalez J, Perula CJ, Roldan AM, de Dios C. Effectiveness of a multifactorial intervention program to reduce falls incidence among community-living older adults: a randomized controlled trial. *Archives of Physical Medicine and Rehabilitation*. 2012; 93(10):1677-1684.  
IF: 2.284

Perula LA, Campiñez M, Bosch JM, Brun NB, Arbonies JC, Fontan JB, Alvarez RM, Prados JA, Martin-Rioboó E, Massons J, Criado M, Fernandez JA, Parras JM, Ruiz-Moral R, Novo JM. Is the Scale for Measuring Motivational Interviewing Skills a valid and reliable instrument for measuring the primary care professionals motivational skills? EVEM study protocol. 2012;13(112);DOI: 10.1186/1471-2296-13-112.  
IF: 1.799

Jimenez-De Gracia L, Ruiz-Moral R, Gavilan-Moral E, Hueso-Montoro C, Galvez DCC, Alba-Dios MA. Opinions of Family Doctor on the involvement of patients in the taking of decisions: a study with focus groups. *Aten Primaria*. 2012;44(7):379-384.  
IF: 0.627

Moral RR, Munguia LP, de Torres LAP, Mundet JO, de la Fuente TC, Lopez AS, Dominguez ML, Lechuga MM. Patient opinion and perception of their participation in family medicine consultation decision making. *Aten Primaria*. 2012;44(1):5-10.  
IF: 0.627

Maiques A, Brotons C, Villar F, Navarro J, Lobos-Bejarano JM, Ortega R, Martín Rioboó E, et al. Recomendaciones preventivas cardiovasculares. *Aten Primaria*. 2012;44 Supl 1:3-15.  
IF: 0.627

LA de Torres, MA Adell, V González Blanco, JM Baena, EM Rioboó, JM Rejano, J González Lama, Remedios Martín Alvarez, Roger Ruiz, JAFernández, M Pérez Díaz, Joaquin Ruiz de Castroviejo, CP de Torres, A Valero Martín, A Roldán Villalobos, M Criado Larumbe, Emili Burdoy, M Coma Solé, M Cervera León, L Cuixart Costa and Collaborative Group DOFA-AP. Opportunistic detection of atrial fibrillation in subjects aged 65 years or older in primary care: a randomised clinical trial of efficacy. DOFA-AP study protocol. *BMC Family Practice* 2012, 13:106 doi: 10.1186/1471-2296-13-106.  
IF: 1.80

## Research Projects

Project Name: Effectiveness of a multifactorial intervention based on motivational interviewing to reduce cardiovascular risk in people treated in primary care (rcv-ap study) (Luis Angel Pérula De Torres)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0100/2008

Project Name: Preferences of physicians and patients concerning their participation in the decision-making process and coherence of their actions in real clinical scenarios (Roger Ruiz Moral)  
Funding body: Carlos III Health Institute  
File Number: PI11/00771

Project Name: Effectiveness of opportunistic detection of atrial fibrillation in people aged 65 years or more in primary care. Dofa-ap study (Luis Angel Pérula De Torres)  
Funding body: Progress and Health Foundation  
File Number: PI-0117-2011



## Calcium Metabolism Vascular Calcification

Head Researcher: Mariano Rodríguez Portillo. [juanm.rodriguez.sspa@juntadeandalucia.es](mailto:juanm.rodriguez.sspa@juntadeandalucia.es)

Co- Head Researcher: Yolanda Almadén Peña

Nicolás Monardes Contract

### Scientific Activity

This group is focused on different aspects of calcium metabolism and vascular calcification. Our primary area of research is centred on the study of the pathogenetic mechanisms of secondary hyperparathyroidism associated with renal failure. In this sense, this group investigates the parathyroid function, both at cellular and molecular level (PTH synthesis and secretion and cell proliferation) of normal and hyperplastic parathyroid glands.

More recently, this group has incorporated into its research activity both in vivo (experimental models with rats) and in vitro studies (vascular smooth muscle cells) of the mechanisms underlying the development of vascular calcification in chronic kidney disease. Thus, in the context of vascular calcification this group is centred on analyzing the role of different diets (with different contents of phosphorus, calcitriol, micronutrients such as magnesium or calcium, calorie diets ...) in FGF23 regulation and in cardiovascular disease progression.

This group has opened a new line of research centred on the study of the involvement of bone marrow mesenchymal stem cells in vascular calcification. Basing on a stem cell-based approach, this group analyzes the signalling pathways by which vascular calcification progresses. Mesenchymal stem cells are also used to investigate how the chronic kidney disease or its treatments may affect bone regarding the formation of new osteoblasts. From this line also derives the study of the regulation of bone production of FGF23. The lines of research group listed above involve the study of gene expression of vitamin D, calcium or FGF23 receptors, and the analysis of different intracellular signaling pathways as Wnt/b-catenin, Noct, Erk, epigenetic modifications, measuring of parameters indicative of osteogenic transdifferentiation, inflammation ...

Research derived from each of these lines can lead to the proposal and use of new therapeutic targets for preventing and reversing vascular calcification and associated complications.

## Keywords

Calcium, phosphorus, metabolism, parathyroid, calcification, uremia. Mineral metabolism, parathyroid hormone, HPTH2<sup>o</sup>, vascular calcification, renal failure, VDR, CaR. Mesenchymal stem cells, Wnt / beta-catenin.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Rodríguez	Portillo	Mariano	HR	Researcher
Almadén	Peña	Yolanda	CO-HR	Researcher
Canalejo	Raya	Antonio Luis	R	Researcher
Estepa	Nieto	José Carlos	R	Researcher
Guerrero	Pavón	Fátima	R	Researcher
Herencia	Bellido	Carmen	R	Researcher
Martínez	Moreno	Julio Manuel	R	Researcher
Aguilera	Tejero	Escolástico (I)	TR	Researcher
López	Villalba	Ignacio	TR	Researcher
Muñoz	Castañeda	Juan Rafael	TR	Researcher
Montes de Oca	González	Addy	PDR	Researcher
Rodríguez	Ortiz	María Encarnación	PDR	Researcher

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher; R: Researcher; TR: Trainee Researcher, PDR: Post-doctoral.  
(I) PAIDI CTS-179 Group

## Publications

Vieira MC, Torronteras R, Cordoba F, Canalejo A. Acute toxicity of manganese in goldfish *Carassius auratus* is associated with oxidative stress and organ specific antioxidant responses. *Ecotoxicol Environ Saf.* 2012; 78;212-217.  
IF: 2.294

Rodríguez-Ortiz ME, Lopez I, Muñoz-Castaneda JR, Martínez-Moreno JM, Ramírez AP, Pineda C, Canalejo A, Jaeger P, Aguilera-Tejero E, Rodríguez M, Felsenfeld A, Almaden Y. Calcium Deficiency Reduces Circulating Levels of FGF23. *Journal of the American Society Nephrology.* 2012; 23(7);1190-1197  
IF: 9.663

Torronteras R, Canalejo A, Elsaesser F. Differential Ontogenetic Patterns of in vitro Desensitization to GHRH in Fetal and Neonatal Anterior Pituitary. *Neuroendocrinology.* 2012; 95(3);257-266.  
IF: 2.376

Pineda C, Aguilera-Tejero E, Raya AI, Díez E, Rodríguez M, Lopez I. Feline parathyroid hormone: validation of hormonal assays and dynamics of secretion. *Domestic Animal Endocrinology.* 2012; 42(4);256-264.  
IF: 2.056

Silver J, Rodriguez M, Slatopolsky E. FGF23 and PTH-double agents at the heart of CKD. *Nephrology Dialysis Transplantation.* 2012; 27(5); 1715-1720.  
IF: 3.396

Martínez-Moreno JM, Muñoz-Castaneda JR, Herencia C, de Oca AM, Estepa JC, Canalejo R, Rodríguez-Ortiz ME, Pérez-Martínez P, Aguilera-Tejero E, Canalejo A, Rodríguez M, Almaden Y. In vascular smooth muscle cells paricalcitol prevents phosphate-induced Wnt/beta-catenin activation. *American Journal of Physiology Renal Physiology.* 2012; 303(8);F1136-F1144.  
IF: 3.682

Mendoza FJ, Pérez-Marín CC, García-Marín L, Madoño JA, Henley C, Aguilera-Tejero E, Rodríguez M. Localization, Distribution and Function of the Calcium-Sensing Receptor in Sperm. *Journal of Andrology.* 2012; 33(1);96-104.  
IF: 2.968

Duranton F, Cohen G, De Smet R, Rodríguez M, Jankowski J, Vanholder R, Argiles A. Normal and Pathologic Concentrations of Uremic Toxins. *Journal of the American Society Nephrology.* 2012; 23(7);1258-1270.  
IF: 9.663

Herencia C, Martínez-Moreno JM, Herrera C, Corrales F, Santiago-Mora R, Espejo I, Barco M,

Almaden Y, de la Mata M, Rodríguez-Ariza A, Muñoz-Castaneda JR. Nuclear translocation of beta-catenin during mesenchymal stem cells differentiation into hepatocytes is associated with a tumoral phenotype. *PlosOne.* 2012; 7(4); n° e34656.  
IF: 4.092

Guerrero F, de Oca AM, Aguilera-Tejero E, Zafra R, Rodríguez M, Lopez I. The effect of vitamin D derivatives on vascular calcification associated with inflammation. *Nephrology Dialysis Transplantation.* 2012; 27(6); 2206-2212.  
IF: 3.396

Zafra R, Estepa JC, Aguilera-Tejero E, Jaber JR, Bautista MJ, Pacheco I, Pérez J. Clinicopathological Features of Hemangioma in Two Young Horses. *Journal of Equine Veterinary Science.* 2012; 32(11);767-769.  
IF: 0.671

Pérez-Ecija A, Estepa JC, Mendoza FJ. Granulomatous giant cell submandibular sialadenitis in a dog. *Canadian veterinary journal-revue vétérinaire canadienne.* 2012; 53(11); 1211-1213.  
IF: 1.063

Mendoza FJ, Valdes MA, Jimenez S, Caparros M, Enriquez F, Barsnick R, Estepa JC. Hemoperitoneum

secondary to splenic rupture in a mare. *Pferdeheilkunde*. 2012; 28(3); 306-309.  
IF: 0.235

Mesa-Sanchez I, Zaldivar-Lopez S, Couto CG, Gamito-Gomez A, Granados-Machuca MM, Lopez-Villalba I, Galan-Rodriguez A. Haematological, blood gas and acid-base values in the Galgo Espanol (Spanish greyhound). *Journal of Small Animal Practice*. 2012; 53(7);398-403.  
IF: 1.00

Dusso AS, Rodriguez M. Enhanced induction of Cyp24a1 by FGF23 but low serum 24,25-dihydroxyvitamin D in CKD: implications for therapy. *Kidney International*. 2012; 82(10);1046-1049.  
IF: 6.606

Rodriguez M, Lopez I, Munoz J, Aguilera-Tejero E, Almaden Y. FGF23 and mineral metabolism, implications in CKD-MBD. *Nefrologia*. 2012; 32(3);275-278.  
IF: 1.00

### Research Projects

Project Name: Role of angiotensin II (All) and system PDGF / PDGFR in vascular calcification associated with renal failure (Yolanda Almaden Peña)  
Funding body: Carlos III Health Institute  
File Number: 10/01311

Project Name: Role of adult stem cells and vascular smooth muscle in damage induced by vascular calcification. Relationship between phosphorus wnt / beta-catenin and osteogenesis (Mariano Rodríguez Portillo)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P09-CTS-5205

Project Name: (SYSKID). Systems biology towards novel chronic kidney disease diagnosis and treatment (Mariano Rodríguez Portillo)  
Funding body: European Commission  
File Number: FP7-241544

Project Name: Vascular calcification, epigenetics and oxidative stress (Escolástico Aguilera Tejero)  
Funding body: Carlos III Health Institute  
File Number: P111/00098

Project Name: Vascular calcification, regulation of osteogenic gene expression in vascular smooth muscle cells and smooth muscle mesenchymal progenitor cells via wnt / beta-catenin (Mariano Rodríguez Portillo)  
Funding body: Carlos III Health Institute  
File Number: P111/02055

Project Name: Effect of phosphorus on epigenetic modifications and wnt/b- catenin and tgf / bmp pathways in mesenchymal stem cells differentiated into vascular smooth muscle cells (Mariano Rodríguez Portillo)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 10/0132

Project Name: In vivo and in vitro studies of ox-

idative stress, inflammation and vascular calcification in chronic kidney disease: application of mesenchymal stem cells to the search for new therapeutic targets (Juan Rafael Muñoz Castañeda)

Funding body: Regional Ministry of Innovation, Science and Business  
File Number: CVI-7925  
2013 Annuity

### Collaboration Agreements

Project Name: Research Collaboration, License and Option Agreement with Amgen to carry out the research activity for SYSKID consortium (Extended) (Mariano Rodríguez Portillo)  
Funding body: AMGEN SA  
File Number: CCB.UCO0008

Project Name: New therapeutic strategies for treatment and prevention of secondary hyperparathyroidism and vascular calcifications (calcimimetics, interleukin antagonists and cell cycle inhibitors) (extended) (Mariano Rodríguez Portillo)  
Funding body: AMGEN SA  
File Number: CCB.UCO0001

### Provision of Services to third parties

Project Title: Effect of paricalcitol on vascular smooth muscle cells (Mariano Rodríguez Portillo)  
Funding body: Abbviefarmaceutica S.L.U.  
File Number: PSS.0015





## Endocrinology and Nutrition. Insulin Resistance, Diabetes and Metabolism

Associated Researcher: Juan Antonio Paniagua González. [japaniaguag@yahoo.es](mailto:japaniaguag@yahoo.es)

PAIDI Group CTS-651

Pedro Benito López

### Scientific Activity

This research group investigates the effect of different nutrients on insulin resistance and body fat distribution in patients with metabolic syndrome from two points of view:

1.- Line of research of Endocrinology and Nutrition, on which several groups work:

Along with Dr. Justo Castaño Fuentes' group, we investigate the expression of different hormone receptors and intracellular mediators in the onset and development of pituitary tumors. In line with translational research principles, this group applies the findings of its research to real clinical practice using inhibitors or stimulators in order to inhibit hormone production and / or reduce their size when surgery is not fully successful.

Also, this group collaborates with Dr. Quesada Gómez's group in the investigation of osteoporosis, particularly, vitamin D and bone stem cells.

This group also collaborates with Dr. Soriguer in the performance of epidemiological studies of diabetes mellitus type 2 and in the prevention of diabetes through a behavior modification programme which is being implemented in a village in southern Cordoba. This group also collaborates with Dr. Caballero in the study of bone metabolism in pregnant women with diabetes.

2.- Line of research: insulin resistance, diabetes and metabolism. This group studies the effect of diet components and pharmacologic interventions on the insulin resistance syndrome and the risk of developing diabetes in patients with "prediabetes". For such purpose, this group characterizes the specific effect of macronutrients on the release of digestive tract incretins and the subsequent signaling. In addition, this group also investigates the effect of diets with different macronutrient contents on body composition and body fat redistribution, and its relationship with insulin sensitivity and secretion. This group studies the role of adipose tissue expansion as a pathogenic factor of insulin resistance, beta-cell failure and diabetes. Finally, this group examines the transcription of metabolic, inflammatory and adipokine pathways in peripheral adipose tissue into diet models, macronutrients and different pharmacologic agents.

## Keywords

Insulin resistance,  $\beta$ -pancreatic dysfunction, prediabetes, metabolic syndrome, and adipotoxicidad adipose tissue, inflammation, oxidative stress, gene expression, metabolomics. Pituitary Adenoma. Somatostatin receptors, Vitamin D, Metabolic Syndrome, Prevalence of Diabetes Mellitus Type 2, Diabetes Mellitus and Pregnancy

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Paniagua	González	Juan Antonio	AR	Researcher
Benito	López	Pedro	AR	Researcher
Bellido	Muñoz	Enrique	R	Researcher
Berral	de la Rosa	Francisco José	R	Researcher
Corpas	Jiménez	M <sup>a</sup> Sierra	R	Researcher
Gálvez	Moreno	M <sup>a</sup> Ángeles	R	Researcher
Molina	Puertas	M <sup>a</sup> José	R	Researcher
Palomares	Ortega	Rafael	R	Researcher
Tenorio	Jiménez	Carmen	R	Researcher
Vigara	Madueño	Remedios	R	Researcher
Escandell	Morales	Juan Manuel	TR	Researcher
Torres	Roldan	M <sup>a</sup> Rosario	AT	Auxiliary Technician

(\*) AR: Associated Researcher; R: Researcher; TR: Trainee Researcher

## Publications

Garcia JJ, Rodero GC, Calañas-Contiente A. Importance of nutritional support in patients with hepatic encephalopathy. *Nutricion Hospitalaria*. 2012; 27(2);372-381.  
IF: 1.12

0151/11: An open, multicenter, expanded access pasireotide s.c. in patients with Cushing disease (Seascape)  
PI: M<sup>a</sup> Angeles Gálvez Moreno

## Clinical trials

0033/10: An open label, multicenter, single-arm study of pasireotide LAR treatment in patients with infrequent tumors of neuroendocrine origin  
PI: Pedro Benito López

0302/10: A multicenter, randomized, double-blind, placebo-controlled study to assess the effectiveness and safety of a 24-week treatment with vildagliptin in patients with diabetes mellitus type 2 > or = 70 years (untreated or uncontrolled)  
PI: Juan Antonio Paniagua González

0235/11: Comparison of LY2605541 versus insulin glargine as basal treatment in combination with insulin oral agents in patients with type 2 diabetes mellitus who have not received prior treatment with insulin: A double-blind, randomized study.  
PI: Juan Antonio Paniagua González



## Study of Growth. Endocrinology and Child Nutrition

Associated Researcher: Ramón Cañete Estrada. [em1caesr@uco.es](mailto:em1caesr@uco.es)

### Scientific Activity

Among other lines of research, this group studies obesity in prepubertal children, focusing on children with metabolic syndrome, inflammatory factors, vascular risk biomarkers and adipose tissue gene expression, diet effects on these factors, study of steatohepatitis and physical activity.

Another line of research is centered on aspects related to nutrition in children with extrauterine growth retardation, especially in those that might later develop metabolic syndrome.

This group also carries out comparative cord blood proteomic analyses of healthy term neonates and neonates with IUGR to identify potential differences that might be associated with IUGR and the likelihood of adverse nutritional effects.

This group also investigates growth-hormone producing cells and morphological, structural and production modifications in animals.

Finally, this group is developing another line of research centered on food allergies.

### Keywords

Child obesity, metabolic syndrome in children, diet, endothelium, inflammation, cardiovascular biomarkers, gene expression, proteomics, neonates with intrauterine growth retardation (IUGR), metabolic syndrome in IUGR, basic research on growth producing cells with different

## Miembro del grupo

Surname 1	Surname 2	Name	Category (*)	Post
Cañete	Estrada	Ramón	AR	Researcher
Cañete	Vázquez	M <sup>a</sup> Dolores	R	Researcher
Díaz	Morales	Olga	R	Researcher
García	Martínez	Elena	R	Researcher
Guzmán	Cabañas	Juana M <sup>a</sup>	R	Researcher
Jiménez	Reina	Luis	R	Researcher
Martos	Estepa	Rosario	R	Researcher
Mata	Rodríguez	Cristina	R	Researcher
Melgar	Jiménez	María	R	Researcher
Parraga	Quiles	M <sup>a</sup> José	R	Researcher
Rodríguez	Salas	Mónica	R	Researcher
Ruis	González	M <sup>a</sup> Dolores	R	Researcher
Tofe	Valera	Inés	R	Researcher
Torres	Borrego	Javier	R	Researcher
Valle	Jiménez	Miguel	R	Researcher
Vázquez	Rueda	Fernando	R	Researcher

(\*) AR: Associated Researcher; R: Researcher.

## Publications

Cañete R, Valle M, Martos R, Sanchez-Carrion A, Canete MD, van Donkelaar EL. Short-term effects of GH treatment on coagulation, fibrinolysis, inflammation biomarkers, and insulin resistance status in prepubertal children with GH deficiency. *European Journal of Endocrinology*. 2012; 167(2):255-260.  
IF: 3.423

Olza J, Aguilera CM, Gil-Campos M, Leis R, Bueno G, Martinez-Jimenez MD, Valle M, Cañete R, Tojo R, Moreno LA. Myeloperoxidase Is an Early Biomarker of Inflammation and Cardiovascular Risk in Prepubertal Obese Children. *Diabetes Care*. 2012; 35(11):2373-2376.  
IF: 8.087

1693: Epidemiological study of early diagnosis of invasive candidiasis in very-low-weight preterm neonates

PI: Juana María Guzmán Cabañas

0180/12: A multicenter, randomized, observer-blinded, active-controlled study to evaluate the safety, tolerability, pharmacokinetics and efficacy of ceftaroline versus ceftriaxone in pediatric patients with bacterial pneumonia

PI: Javier Torres Borrego

## Clinical trials

Clinical trial on the effect of metformin on pediatric obesity: effects on body mass, profile of inflammatory biomarkers and cardiovascular risk, and impact on factors related to the metabolic syndrome (Ramón Cañete Estrada)

Funding body: Spanish Ministry of Health and Social Policy

File Number: 09/0424

0275/10: Clinical trial on the effect of metformin on pediatric obesity: effects on body weight, profile of inflammatory biomarkers and cardiovascular risk, and impact on factors related to the metabolic syndrome PI: Ramon Cañete Estrada



## Clinical Analysis

Associated Researcher: **Cristóbal Aguilera Gámiz**. [Cristobal.aguilera.sspa@juntadeandalucia.es](mailto:Cristobal.aguilera.sspa@juntadeandalucia.es)

Others Researchers: **Fernando Rodríguez Cantalejo, Javier Caballero Villarraso**

### Scientific Activity

Our group is currently developing two lines of research related to the assessment of the diagnostic accuracy of new technologies. On the one hand, we are assessing the diagnostic efficacy of the methodologies used for prenatal diagnosis of aneuploidy such as chorionic villus sampling in screening for aneuploidy in the first trimester and the karyotype study in the first and second trimester of pregnancy. On the other hand, we are assessing new point-of-care testing (POCT) methodologies as gas, blood metabolite and ion determination; diagnosis and evolution of celiac disease, and use of POCT methods in coagulometry for to the follow-up of anticoagulated patients.

### Keywords

New methodologies, chorionic villus sampling, prenatal screening, karyotype, POCT.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Aguilera	Gamiz	Cristóbal	AR	Researcher
Caballero	Villarraso	Javier	R	Researcher
Rodríguez	Cantalejo	Fernando	R	Researcher
Bellido	Muñoz	Enrique	R	Researcher
Gavilán	León	Francisco	R	Researcher
Martínez	Peinado	Antonio	R	Researcher

(\*) AR: Associated Researcher; R: Researcher

## Publications

Velasco C, Lopez-Cortes LE, Caballero FJ, Lepe JA, de Cueto M, Molina J, Rodríguez F, Aller AI, Tapia AMG, Pachon J, Pascual A, Rodriguez-Bano J. Clinical and molecular epidemiology of methicillin-resistant *Staphylococcus aureus* causing bacteraemia in Southern Spain. *Journal of Hospital Infection*. 2012; 81(4);257-263.  
IF: 3.393

Sanchez-Navarro JP, Maldonado EF, Martinez-Selva JM, Enguix A, Ortiz C. Salivary alpha-amylase changes promoted by sustained exposure to affective pictures. *Psychophysiology*. 2012; 49(12);1601-1609.  
IF: 3.29

Marin C, Delgado-Lista J, Ramirez R, Carracedo J, Caballero J, Perez-Martinez P, Gutierrez-Mariscal FM, Garcia-Rios A, Delgado-Casado N, Cruz-Teno C, Yubero-Serrano EM, Tinahones F, Malagon MD, Perez-Jimenez F, Lopez-Miranda J. Mediterranean diet reduces senescence-associated stress in endothelial cells. 2012; *Age*. 34(6);1309-1316.  
IF: 3.948

Gutierrez-Mariscal FM, Perez-Martinez P, Delgado-Lista J, Yubero-Serrano EM, Camargo A, Delgado-Casado N, Cruz-Teno C, Santos-Gonzalez M, Rodriguez-Cantalejo F, Castaño JP, Villalba-Montoro JM, Fuentes F, Perez-Jimenez F, Lopez-Miranda J. Mediterranean diet supplemented with coenzyme Q10 induces postprandial changes in p53 in response to oxidative DNA damage in elderly subjects. *Age*. 2012; 34(2);389-403.  
IF: 3.948

Lozano A, Perez-Martinez P, Delgado-Lista J, Marin C, Cortes B, Rodriguez-Cantalejo F, Gomez-Luna MJ, Cruz-Teno C, Perez-Jimenez F, Lopez-Miranda J. Body mass interacts with fat quality to determine the postprandial lipoprotein response in healthy young adults. *Nutrition, Metabolism and Cardiovascular Diseases*. 2012; 22(4);355-361.  
IF: 3.731

Cruz-Teno C, Perez-Martinez P, Delgado-Lista J, Yubero-Serrano EM, Garcia-Rios A, Marin C, Gomez P, Jimenez-Gomez Y, Camargo A, Rodri-

guez-Cantalejo F, Malagon MM, Perez-Jimenez F, Roche HM, Lopez-Miranda J. Dietary fat modifies the postprandial inflammatory state in subjects with metabolic syndrome: the LIPGENE study. *Molecular Nutrition & Food Research*. 2012; 56(6);854-865.  
IF: 4.301

Perez-Martinez P, Perez-Caballero AI, Garcia-Rios A, Yubero-Serrano EM, Camargo A, Gomez-Luna MJ, Marin C, Gomez-Luna P, Dembinska-Kiec A, Rodriguez-Cantalejo F, Tinahones FJ, Roche HM, Perez-Jimenez F, Lopez-Miranda J, Delgado-Lista J. Effects of rs7903146 Variation in the Tcf7l2 Gene in the Lipid Metabolism of Three Different Populations. *Plos One*. 2012; 7(8);nº 43390-  
IF: 4.092

Camargo A, Delgado-Lista J, Garcia-Rios A, Cruz-Teno C, Yubero-Serrano EM, Perez-Martinez P, Gutierrez-Mariscal FM, Lora-Aguilar P, Rodriguez-Cantalejo F, Fuentes-Jimenez F, Tinahones FJ, Malagon MM, Perez-Jimenez F, Lopez-Miranda J. Expression of proinflammatory, proatherogenic genes is reduced by the Mediterranean diet in elderly people. *British Journal of Nutrition*. 2012; 108(3);500-508.  
IF: 3.013

Fernandez JM, Rosado-Alvarez D, Da Silva Grigo-letto ME, Rangel-Zuniga OA, Landaeta-Diaz LL, Caballero-Villarraso J, Lopez-Miranda J, Perez-Jimenez F, Fuentes-Jimenez F. Moderate to high-intensity training and a hypocaloric Mediterranean diet enhance endothelial progenitor cells and fitness in subjects with the metabolic syndrome. *Clinical Science*. 123(6);361-373.  
IF: 4.317



## Oxidative Stress and Nutrition

Emerging Researcher: Isaac Túnez Fiñana. [fm2tufii@uco.es](mailto:fm2tufii@uco.es)

PAIDI Group CTS-624

### Scientific Activity

Our group studies the effect of different antioxidant agents, as well as transcranial magnetic stimulation on neuro- plasticity (neurogenesis and synaptogenesis), cell death, oxidative stress and behavioural phenotype in models of neurodegeneration induced by neurotoxins and neuropsychiatric models induced by olfactory bulbectomy. Through these models, we analyze the role played by reactive oxygen and nitrogen species in the abovementioned phenomena, as well as the possibility of using the properties of the different agents used as new therapeutic strategies.

Recently, the scope of the study has covered the analysis of transcription factors and vitagenes involved in the antioxidant response.

Additionally, the group is currently studying the role of nitrate and oxidative status, as well as and inflammation in vitagene activation in patients with different neurodegenerative diseases. Finally, the group is involved in intense horizontal research in partnership with other groups in the assessment, analysis and interpretation of oxidative status in different study models and processes.

### Keywords

Oxidative stress, inflammation, mitochondria, cell death, neuroplasticity, antioxidant systems, vitagenes, Nrf2.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Túnez	Fiñana	Isaac	ER	Researcher
Gascón	Luna	Félix	R	Researcher
La Torre	Luque	Manuel	R	Researcher
Luque	Carabot	Evelio	R	Researcher
Peña	Amaro	José	R	Researcher
Ruiz	Villén	María Concepción	R	Researcher
Salcedo	Espinosa	Manuel	R	Researcher
Agüera	Morales	Eduardo	TR	Researcher
Nunez	Paiva	Natacha R.	TR	Researcher
Sánchez	López	Fernando	TR	Researcher
Giraldo	Polo	Ana Isabel	AT	Auxiliary Technician

(\*)ER: Emerging Researcher; R: Researcher; TR: Trainee Researcher

## Publications

Tasset I, Medina FJ, Jimena I, Agüera E, Gascon F, Feijoo M, Sanchez-Lopez F, Luque E, Peña J, Drucker-Colin R, Tunes I. Neuroprotective effects of extremely low-frequency electromagnetic fields on a Huntington's disease rat model: effects on neurotrophic factors and neuronal density. *Neuroscience*. 2012; 209:54-63. IF: 3.38

Tasset I, Sanchez-Lopez F, Agüera E, Fernandez-Bolanos R, Sanchez F, Cruz-Guerrero A, Gascon- Luna F, Tunes I. NGF and nitrosative stress in patients with Huntington's disease. *Journal of the Neurological Science*. 2012; 315(1-2):133-136. IF: 2.353

Tasset I, Agüera E, Sanchez-Lopez F, Feijoo M, Giraldo AI, Cruz AH, Gascon F, Tunes I. Peripheral oxidative stress in relapsing-remitting multiple sclerosis. *Clinical Biochemistry*. 2012; 54(6):440-444. IF: 2.076

Ruiz-Medina J, Flores JA, Tasset I, Tunes I, Valverde O, Fernandez-Espejo E. Alteration of neuropathic and visceral pain in female C57BL/6J mice lacking the PPAR-alpha gene. *Psychopharmacology*. 2012; 222(3):477-488. IF: 4.077

Jimenez-Diaz F, Jimena I, Luque E, Mendizabal S, Bouffard A, Jimenez-Reina L, Peña J. Experimental muscle injury: Correlation between ultrasound and histological findings. *Muscle Nerve*. 2012; 45(5):705-712. IF: 2.367

Llorente-Cantarero F, Gil-Campos N, Benítez-Sillero JD, Muñoz-Villanueva MC, Túnez I, Pérez-Navero JL. Prepuberal children with suitable fitness and physical activity present reduced risk of

oxidative stress. *Free Radical Biology and Medicine*. 2012; 53(3):415-420. IF: 5.423

Sánchez-López F, Tasset I, Agüera E, Feijóo M, Fernández-Bolaños R, Sánchez F, Ruiz MC, Cruz AH, Gascón F, Túnez I. Oxidative stress and inflammation biomarkers in the blood of patients with Huntington's disease. *Neurological Research*. 2012; 34(7): 721-724. IF: 1.522

## Collaboration Agreements

Project Name: Collaboration agreement with Spanish Neurological Association (Fernando Sánchez López).

Funding body: Andalusian Neurological Association  
File Number: CCB.005

## Provision of Services to third parties

Project Name: Development of in vitro CNS disease models and activity assay of the active compounds identified through FRIDA (Isaac Túnez Fiñana)

Funding body: Canvax Biotech S.L.  
File Number: INTER.0001

## Clinical Trials

1634: An epidemiological study for the diagnosis and follow-up of patients with a first demyelinating event suggestive of multiple sclerosis  
PI: Eduardo Agüera Morales

0132/09: A multicenter, randomized, double-blind, parallel-group, placebo-controlled study to evaluate the efficacy and safety of pe-

gylated interferon beta-1 a (biib017) in subjects with relapsing multiple sclerosis  
PI: Fernando Sánchez López

0133/09: A multicenter, extension, blind-dose study to determine the safety and efficacy of long-term monotherapy dose of BGO0012 in patients with relapsing-remitting multiple sclerosis  
PI: Fernando Sánchez López

0056/10: A multicenter, double-blind, randomized, parallel-grlup, active-controlled, monotherapy study to determine the effectiveness an safety of daclizumab obtained through a high performance process (DAC HYP) versus Avonex  
PI: Fernando Sánchez López

0291/10: A multicenter, randomized, semi-cross-over, double-blind, phase I / II study to assess the safety and feasibility of a systemic therapy with mesenchymal cells derived from autologous bone marrow in patients with multiple sclerosis  
PI: Fernando Sánchez López

0329/10: A multicenter, double-blind, placebo-controlled, parallel-group study to assess the effectiveness and safety of Teriflunomid in patients with recurrent multiple sclerosis on treatment with interferon-beta  
PI: Fernando Sánchez López

1738: A study to validate questionnaires to predict and monitor adherence to neurological syndrome and multiple sclerosis treatments in Spain (SAVE)  
PI: Eduardo Agüera Morales

1816: Evaluation of capacity of patients with multiple sclerosis in Spain and its impact on their quality of life  
PI: Fernando Sánchez López

1782: Study of quality of life in patients with spas-

ticity due to multiple sclerosis. CANDLE study.  
PI: Fernando Sánchez López

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0103/11: An open, non-randomized, parallel-group study evaluating the efficacy of fingolimod therapy in de novo patients vs. fingolimod therapy in patients previously treated with interferon or glatiramer acetate  
PI: Eduardo Agüera Morales

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0145/11: A multicenter, extension, dose-blind frequency study to determine the safety and efficacy of long-term pegylated interferon beta-1a (BIBO17) therapy in patients with relapsing multiple sclerosis  
PI: Fernando Sánchez López

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0106/11: A long-term, prospective, observational security study of patients with multiple sclerosis who participated in clinical trials with cladribine  
PI: Fernando Sánchez López

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1989: Long-term effectiveness of Copaxone in regular clinical practice. Observational study (XPERIENCIA-5)  
PI: Eduardo Agüera Morales

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0295/11: A multicenter, randomized, placebo-controlled, triple-blind phase I / II clinical trial to assess the safety, feasibility and effectiveness trend assessment of intravenous therapy with three doses of mesenchymal cells  
PI: Eduardo Agüera Morales

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0196/11: A randomized, double-blind, placebo-controlled, parallel group study to investigate by MRI the efficacy and safety of atumumab administered for a period of six months in patients with relapsing-MS  
PI: Fernando Sánchez López

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## Child Metabolism

Emerging Researcher: Mercedes Gil Campos. [mercedes\\_gil\\_campos@yahoo.es](mailto:mercedes_gil_campos@yahoo.es)

Research Network on Maternal and Child Health (RedSAMID).

PAIDI Group CTS-039

### Scientific Activity

Our group has initiated work in various sub-areas within Pediatrics to form a research group. Previously with other groups, and now with the group we have created, the research is based on understanding the role of metabolism in various pediatric diseases. Basically, this group works on nutritional aspects, as well as in the study of hormonal factors, inflammation and oxidative stress. In recent years we have focused on the study of childhood obesity and the metabolic syndrome currently associated with other pediatric illnesses too, such as prematurity or intra and extra-uterine growth retardation. In addition, the group also carries out research into the genetics of obesity. In future research, we expect to address neuropediatrics, and particular, the inborn errors of metabolism.

### Keywords

Obesity, metabolic syndrome, arteriosclerosis, inflammation, oxidative stress, gene expression, proteomics, nutrigenetics, nutrigenomics.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Gil	Campos	María Mercedes	ER	Researcher
Anton	Gamero	Montserrat	R	Researcher
Arroyo	Marín	María José	R	Researcher
de la Torre	Aguilar	M <sup>a</sup> José	R	Researcher
Fernández	Gutiérrez	José Fernando	R	Researcher
Ibarra	de la Rosa	Ignacio	R	Researcher
Jaraba	Caballero	Susana	R	Researcher
Llorente	Cantarero	Francisco Jesús	R	Researcher
López	Laso	Eduardo	R	Researcher
Mateos	González	María Elena	R	Researcher
Pérez	Navero	Juan Luis	R	Researcher
Ulloa	Santamaría	María Ester	R	Researcher
Velasco	Jabalquinto	María José	R	Researcher

(\*)ER: Emerging Researcher; R: Researcher;

## Publications

Iदारreta MA, Torres-Borrego J, Perez JJG, Santamaria EU, Perez MF. 22Q11 microdeletion syndrome: cardiorespiratory symptoms and fibrobronchoscopy. *Anales de Pediatría*. 2012; 77(2);130-135.  
IF: 0.77

Olza J, Gil-Campos M, Leis R, Ruperez AI, Tojo R, Canete R, Gil A, Aguilera CM. A gene variant of 11 $\beta$ -hydroxysteroid dehydrogenase type 1 is associated with obesity in children. *International Journal Obesity (London)*. 2012; 36(12);1558-1563.  
IF: 4.691

Lopez-Laso E, Beyer K, Opladen T, Artuch R, Saunders-Pullman R. Dyskinesias as a limiting factor in the treatment of segawa disease. *Pediatric Neurology*. 2012; 46(6);404-406.  
IF: 1.522

Navajas A, Lassaletta A, Morales A, Lopez-Ibor B, Sabado C, Moscardo C, Mateos E, Molina J, Sagasetta M, Sastre A. Efficacy and safety of liposomal cytarabine in children with primary CNS tumours with leptomeningeal involvement. *Clinical & Translational Oncology*. 2012; 14(4); 280-286.  
IF: 1.327

Llorente-Cantarero FJ, Perez-Navero JL, Benitez-Sillero JDD, Munoz-Villanueva MC, Gil-Campos M. Evaluation of metabolic risk in prepubertal girls versus boys in relation to fitness and physical activity. *Gender Medicine*. 2012; 9(6);436-444.  
IF: 2.101

Gil-Campos M, Lopez MA, Rodriguez-Benitez MV, Romero J, Roncero I, Linares MD, Maldonado J, Lopez-Huertas E, Berwind R, Ritzenthaler KL,

Navas V, Sierra C, Sempere LI, Geerlings A, Maldonado-Lobon JA, Valero AD, Lara-Villoslada F, Olivares M. *Lactobacillus fermentum* CECT 5716 is safe and well tolerated in infants of 1-6 months of age: a randomized controlled trial. *Pharmacology Research*. 2012; 65(2);231-238.  
IF: 4.436

Espejo MO, Campos MG, Villanueva MCM, Navero JLP. Metabolic changes in prepuberty children with extrauterine growth restriction. *Anales de Pediatría*. 2012; 77(4);247-253.  
IF: 0.77

Olza J, Aguilera CM, Gil-Campos M, Leis R, Bueno G, Martinez-Jimenez MD, Valle M, Canete R, Tojo R, Moreno LA. Myeloperoxidase Is an Early Biomarker of Inflammation and Cardiovascular Risk in Prepubertal Obese Children. *Diabetes Care*. 2012; 35(11);2373-2376.  
IF: 8.087

Llorente-Cantarero FJ, Perez-Navero JL, Benitez-Sillero JD, Munoz-Villanueva MC, Guillen-del Castillo M, Gil-Campos M. Non-traditional markers of metabolic risk in prepubertal children with different levels of cardiorespiratory fitness. *Public Health Nutrition*. 2012; 15(10);1827-1834.  
IF: 2.169

Gil-Campos M, Crespo PS. Omega 3 fatty acids and inborn errors of metabolism. *British Journal Nutrition*. 2012; 107(2);S129-S136.  
IF: 3.013

Lopez-Fernandez Y, Martinez-de Azagra A, de la Oliva P, Modesto V, Sanchez JI, Parrilla J, Arroyo MJ, Reyes SB, Pons-Odena M, Lopez-Herce J, Fernandez RL, Kacmarek RM, Villar J. *Pediatric Acute Lung Injury Epidemiology and Natural History*

Study: Incidence and outcome of the acute respiratory distress syndrome in children. *Critical Care Medicine*. 2012; 40(12);3238-3245.  
IF: 6.33

Aguilar MJD, Belmonte AC, Mesa-Garcia MD, Navero JLP, Gil-Campos MM. Plasma fatty acids profile in paediatric cancer patients. *Nutricion Hospitalaria*. 2012; 27(2);617-622.  
IF: 1.12

Llorente-Cantarero FJ, Gil-Campos M, Benitez-Sillero JD, Munoz-Villanueva MC, Tunes I, Perez-Navero JL. Prepubertal children with suitable fitness and physical activity present reduced risk of oxidative stress. *Free Radical Biology & Medicine*. 2012; 53(3);415-420.  
IF: 5.423

Mateos ME, Lopez-Laso E, Perez-Navero JL, Peña MJ, Velasco MJ. Successful response to cidofovir of adenovirus hepatitis during chemotherapy in a child with hepatoblastoma. *Journal of Pediatric Hematology/Oncology*. 2012; 34(7);e298-e300.  
IF: 1.159

Lopez-Herce J, Ferrero L, Mencia S, Anton M, Rodriguez-Nunez A, Rey C, Rodriguez L. Teaching and training acute renal replacement therapy in children. *Nephrology Dialysis Transplantation*. 2012; 27(5);1807-1811.  
IF: 3.396

Martinez-Augustin O, Aguilera CM, Gil-Campos M, de Medina FS, Gil A. Bioactive anti-obesity food components. *International Journal for Vitamin and Nutrition Research*. 2012; 82(3);148-156.  
IF: 0.877

Bernaola G, Corzo JL, Dominguez-Ortega J, Lu-

cas C, Ojeda I, Torres-Borrego J, Sublingual Immunotherapy: Factors Influencing Adherence. Journal of investigational allergology and clinical immunology . 2012; 22(6);458-459.  
IF: 2.269

Torres-Borrego J, Moreno-Solis G, Molina-Teran AB. Diet for the prevention of asthma and allergies in early childhood: Much ado about something?. Allergologia et Immunopathologia. 2012; 40(4);244-252.  
IF: 1.043

## Research Projects

Project Name: An integral comprehensive proteomic study of liver cancer in children: identification of diagnostic and prognostic factors, key signaling pathways and new therapeutic targets (Elena Mateos)

Funding body: Carlos III Health Institute  
File Number: PI10/02082

Project Name: Usefulness of new biomarkers of cardiac function: mr-proadreno-medulin, copeptin and nt-1 proendothelin heart failure after cardiopulmonary bypass surgery in children with congenital heart disease (Maria Mercedes Gil Campos)

Project Name: Functional assessment of two start infant formulas supplemented with probiotic isolates from breast milk (Maria Mercedes Gil Campos)

Funding body: Puleva Biotech  
File Number: Puleva Biotech

Project Name: Search for cardiovascular risk biomarkers and antioxidant defense system in prepubertal children with a history of extrauterine growth retardation (biorica) (Maria Mercedes Gil Campos)

Funding body: Regional Department of Health and Social Welfare  
File Number: PI-O480-2012  
2013 Annuity

## Provision of Services to third parties

Project Name: New applications of probiotic strains and compounds in derivatives with biological activity (Postbio) (Mercedes Maria Gil Campos)

Funding body: Biosearch, S.A.  
File Number: PSS.003

## Clinical Trials

0003: Incidence of invasive fungal disease and risk scale candidiasis in hospitalized pediatric intensive care units in Spain. ERICAP study.  
PI: María José Arroyo Marín

0010/10: Efficacy and safety of levosimendan in critically ill children with severe acute heart failure  
PI: María Esther Ulloa Santamaría

1783: Register of patients with Niemann-Pick type C

PI: Eduardo López Laso

0018/09: A multicenter, open, randomized, phase III study of the efficacy of sodium thiosulfate (STS) in the reduction of ototoxicity in patients receiving cisplatin chemotherapy for standard risk hepatoblastoma

PI: María Elena Mateos González

0061/11: European Neuroblastoma Treatment Protocol for low or intermediate risk / European Low and Intermediate Risk Neuroblastoma

PI: María Elena Mateos González

0293/11: A multicenter, unmasked study of the safety and long-term efficacy of Lamzym in the treatment of alpha-mannosidosis

PI: María Mercedes Gil Campos

0106/12: A prospective, multicenter, randomized, double-blind, placebo-controlled phase 3 study to assess the pharmacokinetics, safety and efficacy of paricalcitol capsules in reducing serum parathyroid hormone levels

PI: Montserrat Antón Gamero

1929: A randomized, double-blind, controlled study to investigate the effect of infant formula on the incidence of gastrointestinal symptoms in healthy full term children.

PI: Juan Luis Pérez Navero



## Regenerative Cell Therapy: Organ Transplants

Coordinator: Inmaculada Concepción Herrera Arroyo

**C-01** Cell Therapy

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**C-02** Invasive Cardiology and Cell Therapy

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**C-03** Cell Biology in Haematology. Hypercoagulability

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**C-04** Physiopathology of Endocrine Vitamin D System Biotechnology and Aging

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**C-05** Translational Research in Surgery of Solid Organ Transplantation

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**Cas-04** Urology and Sexual Medicine





## Cell Therapy

Head Researcher: Inmaculada Herrera Arroyo. [inmaculada.herrera.sspa@juntadeandalucia.es](mailto:inmaculada.herrera.sspa@juntadeandalucia.es)

### Scientific Activity

The Cell Therapy Unit centres its main activity on clinical research in this area by carrying out different clinical trials. This Unit is currently conducting clinical trials with adult stem cells in autologous bone marrow in acute myocardial infarction, chronic ischemic heart disease, idiopathic dilated cardiomyopathy and chronic critical ischemia of the lower limbs. From 2011, we will be in a position to produce mesenchyme cells in GMP conditions for the initiation of new clinical trials with these cells.

At the same time, we are carrying out several translational studies both in vitro and with animal models, particularly in therapeutic angiogenesis of mononuclear bone marrow cells.

### Keywords

Stem cells, cell therapy, regenerative medicine, myocardial regeneration, chronic ischemia, therapeutic angiogenesis.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Herrera	Arroyo	Inmaculada Concepción	HR	Coordinator of Area C
Nogueras	Martín	Sonia	R	Researcher
Canis	López	Miguel	R	Researcher
García-Revilla	García	José	R	Researcher
Chacón	Quevedo	Antonio	R	Researcher
Martín	Palanco	Vanesa	R	Researcher
Romero	Mata	Noelia	AT	Auxiliary Technician
Carmona	Luque	M <sup>a</sup> Dolores	TR	Trainee Researcher
Cañadillas	López	M <sup>a</sup> Sagrario	R	Researcher
Jiménez	Moreno	Rosario	PDR	Researcher
Castilla	Rodríguez	María Luisa	AT	Auxiliary Technician
Gutiérrez	Fernández	Rosario	AT	Auxiliary Technician
Luque	Zafra	María	AT	Auxiliary Technician
Muñoz	Liñán	Teresa	AT	Auxiliary Technician

(\*) HR: Head Researcher; R: Researcher; TR: Trainee Researcher; PDR: Post-doctoral Researcher

## Publications

Cuende N, Rico L, Herrera C. Concise Review: Bone Marrow Mononuclear Cells for the Treatment of Ischemic Syndromes: Medicinal Product or Cell Transplantation? *Stem Cells Translational Medicine*. 2012; 1(5):403-408

Herencia C, Martínez-Moreno JM, Herrera C, Corrales F, Santiago-Mora R, Espejo I, Barco M, Almaden Y, de la Mata M, Rodríguez-Ariza A, Muñoz-Castañeda JR. Nuclear Translocation of b-Catenin during Mesenchymal Stem Cells Differentiation into Hepatocytes Is Associated with a Tumoral Phenotype. *PLOS ONE* 2012; 7(4): e34656. doi:10.1371/journal.pone.0034656; 12/86. IF= 4.411

## Research Projects

Project Name: A comparative study of myocardial regeneration capacity of bone marrow mononuclear cells (MNC-mo), versus mesenchymal cells from bone marrow (MSCS-mo) and adipose tissue (MSCS-ta) in an in vivo model of dilated cardiomyopathy (Sonia Nogueras Martín)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0191/2010

Project Name: Cell preservation system project (Inmaculada Concepción Herrera Arroyo)  
Funding body: MINECO  
File Number: CCB.031PM

Project Name: Phase I Study of Intraarterial Injection of VEGF Producing MSC for the Treatment of Critical Limb Ischemia (Inmaculada Concepción Herrera Arroyo)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: CIRM

Project Name: Combination therapy with mesenchymal stem cells and erythropoietin in the treatment of chronic renal failure in an experimental study in rats (Sagrario Cañadillas Lopez)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: PI0141/2012

Project Name: Genomic and functional analysis of mo-mscs and derived exosomes in diabetic patients with peripheral arterial ischemia. Implications for cell therapy. (Vanesa Martín Palanco)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: PI-0551-2012  
2013 Annuity

Project Name: Revascularization and Myocardial regeneration in Patients With Chronic Coronary Occlusion and Ventricular Dysfunction (Pan Manuel Alvarez-Ossorio)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: PI-0315-2012  
Collaboration agreements

## Clinical Trials

0291/10: A multicenter, randomized, semi-crossover, double-blind, phase I/II clinical trial to assess the safety and feasibility of systemic therapy with mesenchymal cells derived from autologous bone marrow in patients with multiple sclerosis.  
PI: Inmaculada Herrera Arroyo

An open, randomized clinical trial on intra-arterial infusion of autologous bone marrow mononuclear cells in nondiabetic patients with chronic critical ischemia of the lower limbs.  
PI: Inmaculada Herrera Arroyo

Phase II clinical trial on the effect of intracoronary infusion of bone marrow mononuclear cells on functional recovery in patients with previous chronic myocardial and severely depressed left ventricular function  
PI: Miguel Angel Romero Moreno  
Collaboration agreements

An open, multicenter, randomized, phase II trial of intraportal infusion of bone marrow mononuclear cells as an autologous liver regeneration enhancer before performing extended hepatic resections  
PI: Javier Padillo Ruiz  
Collaboration agreements



## Invasive Cardiology and Cell Therapy

Head Researcher: José Suárez de Lezo Cruz-Conde. [jose.suarezlezo.sspa@juntadeandalucia.es](mailto:jose.suarezlezo.sspa@juntadeandalucia.es)

PAIDI Group Bio-208

### Scientific Activity

Our group studies the effect of cell therapy in myocardial regeneration. We mainly deal with patients with 2 types of heart pathologies: those with ventricular dysfunction secondary to myocardial infarction, both in acute and in chronic phases, and those with dilated cardiomyopathy of non-ischemic origin.

There are two well-defined lines of study: first, the recovery of ventricular function and its clinical impact: here, we study global and regional contractility, potentiation, diastolic function and coronary reserve. The other line looks at the influence of biological parameters (cell lines, migration, distribution, nesting capabilities, etc.) in functional improvement. All the patients enrolled in the various studies are followed up periodically from the clinical, ultrasonic, ergometric and angiographic viewpoints.

### Keywords

Ventricular dysfunction, cell therapy, stem cells, acute myocardial infarction and dilated cardiomyopathy.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Suárez De Lezo	Cruz-Conde	José M <sup>a</sup>	HR	Researcher
Mazuelos	Bellido	Francisco	R	Researcher
Ojeda	Pineda	Soledad	R	Researcher
Pan	Álvarez-Ossorio	Manuel	R	Researcher
Pavlovic	Djurovic	Djordje	R	Researcher
Romero	Moreno	Miguel Ángel	R	Researcher
Segura	Saint-Gerons	José M <sup>a</sup>	R	Researcher
Suárez De Lezo	Herreros De Tejada	Javier	R	Researcher

(\*) HR: Head Researcher; R: Researcher

## Publications

Toledano F, Suárez de Lezo J, Segura J, Suárez de Lezo J jr., Mesa D. An electrocardiographic sign of tumor invasion of the myocardium. *American Journal of Emergency Medicine*. 2012; 30(9):2078.e1-5.  
IF: 1.976

Toledano F, Crespin M, Ruiz M, Mesa D, Romo E, Delgado M, Suárez de Lezo J. Etiologic spectrum and clinical features of mitral regurgitation in a Spanish population. *Journal of Heart Valve Disease*. 2012; 21(3):293-298.  
IF: 0.811

Villanueva-Fernandez E, Ruiz-Ortiz M, Mesa-Rubio D, Ortega MD, Romo-Peñas E, Toledano-Delgado F, Lopez-Aguilera J, del Campo LCD, Suárez de Lezo J. Feasibility of bidimensional speckle-tracking echocardiography for strain analysis in consecutive patients in daily clinical practice. *Echocardiography (Mount Kisco, N.Y.)*. 2012; 29(8):923-926.  
IF: 1.239

Garcia-Fuertes D, Mesa-Rubio D, Ruiz-Ortiz M, Delgado-Ortega M, Tejero-Mateo I, Pan-Alvarez-Ossorio M, Suarez-de-Lezo J, Lafuente M. Monitoring Complex Secundum Atrial Septal Defects Percutaneous Closure with Real Time Three Dimensional Echocardiography. *A Journal of Cardiovascular Ultrasound and Allied Techniques*. 2012; 29(6):729-734.  
IF: 1.239

Suarez de Lezo J, Medina A, Martin P, Novoa J, Suarez de Lezo J, Pan M, Caballero E, Melian F, Mazuelos F, Quevedo V. Predictors of ostial side branch damage during provisional stenting of coronary bifurcation lesions not involving the side branch origin: an ultrasonographic study. *Eurointervention*. 2012; 7(10):1147-1154.  
IF: 3.285

Pan M, Medina A, Suárez de Lezo J, Romero M, Segura J, Martin P, Suárez de Lezo J, Hernandez E, Mazuelos F, Ojeda S. Randomized study comparing everolimus and sirolimus-eluting stents in

patients with bifurcation lesions treated by provisional sidebranch stenting. *Catheterization and Cardiovascular Interventions*. 2012; 80(7):1165-1170.  
IF: 2.29

Cejudo L, Mesa D, Ruiz M, Delgado M, Pan M, Ojeda S, Villanueva E, Lopez J, Suárez de Lezo J. Usefulness of transesophageal echocardiography during implantation of the CoreValve percutaneous aortic prosthesis: Influence of the learning curve. *Catheterization and Cardiovascular Interventions*. 2012; 80(6):964-971.  
IF: 2.29

Delgado M, Ruiz M, Mesa D, Suárez de Lezo J, Pan M, López J, Villanueva E, Cejudo L. Early improvement of the regional and global ventricle function estimated by two-dimensional speckle tracking echocardiography after percutaneous aortic valve implantation. *Echocardiography* 2012; 30:37-44. Sep 18. Doi: 10.1111/j.1540-8175.2012.01808.  
IF: 1.239

Tejero MA, Espejo S, Suárez de Lezo J. Congenital aneurysm in the left atrial appendage in a newborn baby. *Rev Esp Cardiol* 2012; 65: 99-100.  
IF: 2.530

Ruiz M, Romo E, Mesa D, Delgado M, López-Ibañez C, Suárez de Lezo J. Effectiveness of oral anticoagulation in atrial fibrillation non-valvular according CHA2DS2-VASc score in patients with low-medium embolic risk. *Rev Esp Cardiol* 2012; 65: 382-3.  
IF: 2.530

Gamez AL, Bonilla JL, Anguita M, Castillo JC, Arizon JM, Suárez de Lezo J. Effects of three different disease management programs on outcomes in patients hospitalized with heart failure: a randomized trial. *Medicina Clinica* 2012; 138 (5): 192-198.  
IF: 1.398

## Research Projects

Project Name: Effect of intracoronary infusion of bone marrow mononuclear cells on functional recovery in patients with previous chronic infarction and severely depressed left ventricular function (Miguel Ángel Romero Moreno)  
Funding body: Spanish Ministry of Health and Social Policy  
File Number: CMMO/CIC/2009 (extended)

Project Name: influence of side branch predilatation in the success of treatment with drug-eluting stents in bifurcation lesions: A prospective randomized study (Manuel Pan Alvarez-Ossorio)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: 0209/2009

Project Name: Use of the "jailed guidewire" technique in the percutaneous treatment of coronary bifurcation stenting: A randomized study of stereoscopic microscopy (Manuel Pan Álvarez-Ossorio)  
Funding body: Carlos III Health Institute  
File Number: PI12/00440  
2013 Annuity

Project Name: Revascularization and Myocardial regeneration in Patients with Chronic Coronary Occlusion and Ventricular Dysfunction (Manuel Pan Alvarez-Ossorio)  
Funding body: Regional Ministry of Health and Social Welfare  
File Number: PI-0315-2012  
2013 Annuity

## Clinical trials

O287/09: Phase II clinical trial on the effect of intracoronary infusion of bone marrow mononuclear cells on functional recovery in patients with previous chronic myocardial and severely depressed left ventricular function  
PI: Miguel Angel Romero Moreno

O170/09: A clinical trial of the feasibility, safety and effectiveness of cardiac resynchronization

therapy and mononuclear bone marrow stem cell intracoronary transplantation in patients with acute myocardial infarction

PI: José Suárez De Lezo Cruz-Conde

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1681: European Coronary Bifurcation Study: A randomized comparison of a provisional stenting strategy with the systematic implantation of two stents in true bifurcations in large vessels

PI: Manuel Pan Álvarez-Ossorio

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1756: An observational register of stable patients undergoing a scheduled electrical (or pharmacological) cardioversion in Spain and 12-month evolution. CARDIOVERSE Study

PI: José M<sup>a</sup> Segura Saint-Gerons

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## Cell Biology in Haematology. Hypercoagulability

**Head Researcher:** Joaquín Sánchez García. [Joaquin.sanchez@cheerful.com](mailto:Joaquin.sanchez@cheerful.com)

Spanish Myelodysplastic Syndrome Registry (Resmd) (Collaborator)

**Co-Head Researcher:** Francisco Velasco Gimena

Observational Immune Tolerance Induction research program (ObsITI) (Collaborator)

### Scientific Activity

Our cell biology group in Hematology works in two areas:

1. The immunological mechanisms of the phenomena of graft versus host disease and graft versus leukemia occurring after hematopoietic transplantation for hematologic malignancies. This study covers antigen presenting cells, lymphocyte effectors and regulatory populations in quantitative and functional studies.
2. In addition, the group studies the mechanisms of leukemogenesis through the study of normal and leukemic primitive quiescent precursors (GO, Side population). The main methods used are cell culture, multiparameter flow cytometry with cell sorting and complete Western blot proteomics for intracellular signalling proteins.

The group also studies the mechanisms of hypercoagulability associated with oncohematologic processes. Its members participate in groups of the region (GASMD, GALA, GNL), of the country (PETHEMA, SEHOP, GETH, RESMD) and in the international group focused on transplantation (EBMT) for the study and treatment of hemopathies in children and adults.

### Keywords

Immunology of hematopoietic transplantation. Cell biology of acute leukemias.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Sánchez	García	Joaquín	HR	Researcher
Velasco	Gimena	Francisco	CO-HR	Researcher
Torres	Gómez	Antonio (I)	CR	Researcher
Álvarez	Rivas	Miguel A.	R	Researcher
Gómez	García	Pedro	R	Researcher
Martín	Calvo	Carmen	R	Researcher
Molina	Hurtado	José R	R	Researcher
Rojas	Contreras	Rafael	R	Researcher
Serrano	López	Josefina	R	Researcher
Serrano	López	Juana	R	Researcher
Figueroa	Vázquez	VianiHuini	TR	Researcher

(\*) HR: Head Researcher; CO-HR: CO-Head Researcher R: Researcher, CR: Collaborator Researcher; TR: Trainee Researcher  
(I) PAIDI Group CTS 620

## Publications

Vencesla A, Baena M, Garrido RP, Nunez R, Velas- co F, Rosell J, Villar A, Jimenez-Yuste V, Baiget M, Tizzano EF.F8 gene dosage defects in atypical patients with severe haemophilia A.Haemophilia. 2012; 18(5):708-713.  
IF: 2.597

Molina JR, Serrano J, Sanchez-Garcia J, Rodriguez-Villa A, Gomez P, Tallon D, Martin V, Rodriguez G, Rojas R, Martin C, Martinez F, Alvarez MA, Torres A. Voriconazole as primary antifungal prophylaxis in children undergoing allo-SCT. Bone Marrow Transplantation. 2012; 47(4):562-567.  
IF: 3.746

Barba P, Sampol A, Calbacho M, Gonzalez J, Serrano J, Martinez-Sanchez P, Fernandez P, Garcia-Boyerero R, Bueno J, Ribera JM.Clofarabine-based chemotherapy for relapsed /refractory adult acute lymphoblastic leukemia and lymphoblastic lymphoma. The Spanish experience. American Journal of Hematology. 2012; 87(6):631-634.  
IF: 4.671

Rives S, Estella J, Camós M, García-Miguel P, Verdeguer A, Couselo JM, Tasso M, Molina J, Gómez P, Fernández-Delgado R, Navajas A, Badell I; (Spanish Society Pediatric Hematology/Oncology). T-cell pediatric acute lymphoblastic leukemia: analysis of survival and prognostic factors in 4 consecutive protocols of the Spanish cooperative study group SHOP. MED CLIN (BARC). 2012; 7;139(4):141-9  
IF: 1.385

Rives S, Camós M, Estella J, Gómez P, López-Duarte M, Navajas A, Badell I. Validation of the 'French Acute Lymphoblastic Leukaemia Study Group FRALLE prognostic index' for pediatric Philadelphia-chromosome acute lymphoblastic leukaemia.Br j haematol. 2012 ;156(2):284-6.  
IF: 4.491

Sanz J, Boluda JC, Martín C, González M, Ferrá C, Serrano D, de Heredia CD, Barrenetxea C, Martínez AM, Solano C, Sanz MA, Sanz GF. Single unit umbilical cord blood transplantation from unrelated donors in patients with hematological malignancy using busulfan, thiopeta, fludarabine and ATG as myeloablative conditioning regimen. Bone marrow transplant. 2012; 47(10):1287-93.  
IF: 3.746

Cantisán S, Martín C, Romero-Sánchez MC, Ferrando-Martínez S, Martínez F, Rivero A, Torres A, Solana R, Torre-Cisneros.The role of defective thymic function in onset of ganciclovir resistant cytomegalovirus after cord blood transplantation. J clin vaccine immunol. 2012; 12: 1994-1998  
IF: 2.546

Perez-Sanchez C, Ruiz-Limon P, Aguirre MA, Bertolaccini ML, Khamashta MA, Rodriguez-Ariza A, Segui P, Collantes-Estevez E, Barbarroja N, Khraiwesh H, Gonzalez-Reyes JA, Villalba JM, Velasco F, Cuadrado MJ, Lopez-Pedraza C. Mitochondrial dysfunction in antiphospholipid syndrome: implications in the pathogenesis of the disease and effects of coenzyme Q(10) treatment Blood. 2012; 119:5859-70.  
IF: 9.89

## Research Projects

Project Name: Study of the Th17 cells in the pathogenesis of graft versus host disease (GVHD) after allogeneic hematopoietic stem cell transplantation (Joaquín Sánchez García).  
Funding body: Spanish Ministry of Science and Innovation  
File Number: BFU2009-11826

Project Name: Analysis of the cellular and molecular mechanisms regulating the effect of fluvastatin and new antioxidant drugs in the prevention of thrombosis and syndrome associated

atherothrombosis (Francisco Velasco Gimena)  
Funding body: Regional Ministry of Innovation, Science and Business  
File Number: P08-CVI-04234

## Clinical trials

O167/09: A multicenter, randomized, double-blind, phase III study of Revlimid (lenalidomida) versus placebo in patients with low-risk myelodysplastic syndrome (low and intermediate-1 IPSS) with impaired 5q-and anemia without transfusion requirements  
PI: Joaquín Sánchez García

O290/09: A multicenter, randomized, double-blind, placebo-controlled, phase III study of panobinostat in combination with bortezomib and dexamethasone in patients with relapsed multiple myeloma  
PI: Antonio Torres Gómez

O211/08: A phase I / II study of the safety and activity of the combination Lenalidomide and Rituximab (LenRtx) in patients with refractory or relapsed Chronic Lymphocytic Leukemia (CLL)  
PI: Antonio Torres Gómez

O112/10: A multicenter, randomized, open-label, phase II study of Vidaza (Azacitidine) versus supportive therapy in patients with low-risk MDS (low and intermediate-1PSS ) without 5q-deletion and anemia requiring transfusion  
PI: Joaquín Sánchez García

O299/10: Maintenance treatment with 5-Azacitidine in patients with acute myelogenous leukemia ineligible for intensive treatment with partial or complete response to induction chemotherapy  
PI: Antonio Torres Gómez

0133/10: An open, multicenter, randomized, Phase II / III study to compare the efficacy and safety of lenalidomida (revlimid®) with the investigator's treatment choice in patients who have relapsed or are resistant to diffuse lymphoma

PI: Antonio Torres Gómez

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0095/10: An open, multicenter, prospective, single arm, phase II clinical trial to analyze induction therapy with a combination of low dose clofarabine and cytarabine followed by consolidation therapy with clofarabine and cytarabine at a low-dose.

PI: Antonio Torres Gómez

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0070/11: A multicenter, prospective, open-label, single arm, phase I-II clinical trial to analyze the induction treatment with a combination of fludarabine, idarubicin, cytarabine, G-CSF and plerixafor for the treatment of young patients with LM

PI: Antonio Torres Gómez

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1959: Hematopoietic stem cell transplantation from haploidentical donors with in vitro selective depletion of allo-reactive lymphocytes in patients with high risk hematological malignancies

PI: Antonio Torres Gómez

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0020/12: Ofatumumab as part of the reduced intensity conditioning system (RIC) in patients with high risk non-Hodgkin's lymphoma B receiving allogeneic hematopoietic stem cell transplantation

PI: María del Carmen Martín Calvo

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1786: National Register of patients diagnosed with acute myeloid leukemia according to the WHO criteria and undergoing treatment with azacitidine ALMA

PI: Antonio Torres Gómez

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1790: Study of the correlation between ex vivo response to anticancer drugs and their effectiveness in treating acute myeloid leukemia

PI: Antonio Torres Gómez

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1949: An observational, multicenter study of the guidelines for treatment with recombinant factor IX in patients with hemophilia B in Spain. Observation period: 1 year

PI: Francisco Velasco Gimena

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## Physiopathology of Endocrine Vitamin D System Biotechnology and Aging

Head Researcher: José Manuel Quesada Gómez. [md1qugoj@uco.es](mailto:md1qugoj@uco.es)

Thematic Network of Research Partnerships on Aging-Frailty (RETICEF). PAIDI Group: CTS-413

### Scientific Activity

Our group studies:

1. Osteoporosis: related risk factors, genetics and epidemiology. Endocrine system of vitamin D, other liposoluble vitamins, carotenoids, fatty acids related to osteoporosis and aging.
  2. Differentiation of mesenchymal stem cells into osteoblasts, adipocytes or vessels. Study of genes and related factors. Its application in human clinical medicine.
    - a) Evaluation of compounds that may influence the differentiation of mesenchymal stem cells to osteoblasts and adipocytes. By following this line, we intend to evaluate the differentiation capacity of mesenchymal stem cells into adipocytes and osteoblasts in drugs and natural compounds in order to determine what may favour or hinder the formation of new bone. The results obtained in this area may open up new therapeutic strategies to prevent and counter osteoporosis.
    - b) Studies of gene expression of genes related to osteogenesis and adipogenesis.
- The aim of this research is to identify human stem cells, which are genes involved in the differentiation into osteoblasts and adipocytes, and associated with osteoporosis. To achieve this, we hope to carry out functional genomics studies to compare gene expression profiles between stem cells originating from both osteoporotic and non-osteoporotic women.

### Keywords

Osteoporosis, vitamin D, carotenoids, fatty acids, human mesenchymal stem cells (MSCh) of adult adipocytes, osteoblasts, polyphenols, gene expression, proteomics, nutrigenetics, and nutrigenomics.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Quesada	Gómez	José Manuel	HR	Researcher
Cuenca	Acevedo	Rafael	R	Researcher
Mata	Granados	José María	R	Researcher
Santiago	Mora	Raquel	R	Researcher
Serrano	Alférez	Ignacio	R	Researcher
Casado	Díaz	Antonio	AT	Auxiliary Technical

(\*) HR: Head Researcher ; R: Researcher

## Publications

Herencia C, Martínez-Moreno JM, Herrera C, Corrales F, Santiago-Mora R, Espejo I, Barco M, Almaden Y, de la Mata M, Rodríguez-Ariza A, Muñoz-Castaneda JR. Nuclear translocation of betacatenin during mesenchymal stem cells differentiation into hepatocytes is associated with a tumoral phenotype. *Plos One*. 2012; 7(4):nº e34656-.  
IF: 4.092

## Clinical trials

0009/09/EPA: PRIMARA: A prospective observational descriptive study to review the use of Mimpara® (cinacalcet) in clinical practice in patients with primary hyperparathyroidism  
PI: José Manuel Quesada Gómez

## Research Projects

Project Name: Effect of  $\beta$ -cryptoxanthin on adipogenesis, angiogenesis and osteoblastogenesis. Application in the treatment of osteoporosis, obesity and the prevention of adverse effects of glitazones used in the treatment of diabetes mellitus

Funding body: Regional Ministry of Health and Social Welfare

File Number: 0200/2009

Project Name: Effect of lipid peroxidation and antioxidant agents on osteoblastic and adipogenic differentiation of mesenchymal stem cells and their role in osteoporosis (Jose Manuel Quesada Gómez)

Funding body: Carlos III Health Institute

File Number: 08/1692

Project Name: Study of the effect of Oleuropein on fibroblasts. Implications in the treatment of diabetic foot (Raquel Santiago Mora)

Funding body: Regional Ministry of Health and Social Welfare

File Number: PI-0335-2012

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Project Name: Evaluation in an in vivo model of the healing effect (Jose Manuel Quesada Gómez)

Funding body: Carlos III Health Institute

File Number: PI12/02315

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## Translational Research in Surgery of Solid Organ Transplantation

Head Researcher: Francisco Javier Briceño Delgado. javibriceno@hotmail.com

### Scientific Activity

Our group studies aspects related to the increase in the donor pool and technical innovations in solid organ transplants. It also aims to establish guidelines to improve the use of expanded criteria donors, and to develop and implement improvements in surgical techniques and technological innovations in the transplant of solid organs.

### Keywords

Liver transplant, pancreas transplant, kidney transplant, lung transplant, heart transplant, living donor transplantation, pediatric transplantation, split transplantation, expanded criteria donors.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Briceño	Delgado	Francisco Javier	HR	Researcher
Montero	Álvarez	José Luis	R	Researcher
Rufián	Peña	Sebastián	R	Researcher
Campos	Hernández	Juan Pablo	R	Researcher
Ciria	Brú	Rubén	R	Researcher
Jiménez	Gómez	Jesús	R	Researcher
López	Cillero	Pedro	R	Researcher
Muñoz	Casares	Francisco Cristobal	R	Researcher
Pleguezuelo	Navarro	María	R	Researcher
Pozo	Laderas	Juan Carlos	R	Researcher
Robles	Ariza	Juan Carlos	R	Researcher
Arjona	Sánchez	Álvaro	TR	Researcher
Leva	Vallejo	Manuel	TR	Researcher
Regueiro	López	Juan Carlos	TR	Researcher

(\*) HR: Head Researcher; R: Researcher; TR: Trainee Researcher

## Publications

- Ciria R, Briceno J, Rufian S, Luque A, Lopez-Cillero P. Donation after Cardiac Death: Where, When, and How? *Transplantation Proceedings*. 2012; 44(6):1470-1474. IF: 1.005
- Borgatta B, Perez M, Vidaur L, Lorente L, Socias L, Pozo JC, Garnacho-Montero J, Rello J. Elevation of creatine kinase is associated with worse outcomes in 2009 pH1N1 influenza A infection. *Intensive Care Medicine*. 2012; 38(7):1152-1161. IF: 5.399
- Bonastre J, Suberviola B, Pozo JC, Guerrero JE, Torres A, Rodriguez A, Martin-Loeches I. Extracorporeal lung support in patients with severe respiratory failure secondary to the 2010-2011 winter seasonal outbreak of influenza A (H1N1) in Spain. *Medicina Intensiva*. 2012; 36(3):193-199. IF: 1.072
- Sanchez-Hidalgo JM, Naranjo A, Ciria R, Ranchal I, Aguilar-Melero P, Ferrin G, Valverde A, Rufian S, Lopez-Cillero P, Muntane J, Briceno J. Impact of age on liver regeneration response to injury after partial hepatectomy in a rat model. *Journal of Surgical Research*. 2012; 175(1):E1-E9. IF: 2.247
- Davila D, Ciria R, Jassem W, Briceno J, Littlejohn W, Vilca-Melendez H, Srinivasan P, Prachalias A, O'Grady J, Rela M, Heaton N. Prediction Models of Donor Arrest and Graft Utilization in Liver Transplantation From Maastricht-3 Donors After Circulatory Death. *American Journal of Transplantation*. 2012; 12(12):3414-3424. IF: 6.394
- Ciria R, Davila D, Khorsandi SE, Dar F, Valente R, Briceno J, Vilca-Melendez H, Dhawan A, Rela M, Heaton ND. Predictors of early graft survival after pediatric liver transplantation. *Liver Transplantation*. 2012; 18(11):1324-1332. IF: 3.386
- Aguado JM, Varo E, Usetti P, Pozo JC, Moreno A, Catalan M, Len O, Blanes M, Sole A, Munoz P, Montejo M. Safety of anidulafungin in solid organ transplant recipients. *Liver Transplantation*. 2012; 18(6):680-685. IF: 3.386
- Alonso J, Briceno FJ, Orti R, Luque A. Giant hidatidic cyst. *Revista Chilena de Cirugia*. 2012; 64(5):425-425. IF: 0.184
- Rodriguez RJO, Martinez AV, Nieto RD, Cillero PL. Multiple and giant hepatic hemangioma. *Cirugia Española*. 2012; 90(6):E21-E21. IF: 0.874
- Benitez Cantero JM, Costan Rodero G, Montero Alvarez JL, Ayllon Teran MD, Naveas Polo C, Fraga Rivas E, Barrera Baena P, Poyato Gonzalez A, Lopez Cillero P, Luque Molina A, De la Mata Garcia M. Biliary Complications After Liver Transplantation Using Side-to-Side Choledochocholedochostomy Reconstruction With or Without T-Tube. *Transplantation Proceedings*. 2012; 44(7):2098-2099. IF: 1.005
- Tomas EA, Rios MIQ, Arista JCR, Algar FJA, Wolf JI, Kindelan AA, Madueno FC, Laborda CB, Pabon RG, Velazquez AS. Postoperative complications in the intensive care unit following lung transplantation in adults: results at teaching Hospital Reina Sofia. *Transplantation proceedings*. 2012; 44(9):2663-2665. IF: 1.005
- Martinez-Saldivar B, Prieto J, Berenguer M, de la Mata M, Pons JA, Serrano T, Rafael-Valdivia L, Aguilera V, Barrera P, Parrilla P, Lorente S, Rubin A, Fraga E. Control of blood pressure in liver transplant recipients. *Transplantation*. 2012; 93(10):1031-1037. IF: 4.003
- Cruz-Ramirez M, Hervas-Martinez C, Fernandez JC, Briceno J, de la Mata M. Multiobjective evolutionary algorithm for donor-recipient decision system in liver transplants. *European Journal of Operational Research*. 2012; 222(2):317-327. IF: 1.815
- Carrasco-Valiente J, Anglada-Curado FJ, Aguitar-Melero P, Gonzalez-Ojeda R, Muntane-Relat J, Padillo-Ruiz FJ, Requena-Tapia MJ. State of acute phase markers and oxidative stress in patients with kidney stones in the urinary tract. *Actas Urológicas Españolas*. 2012; 36(5): 296-301. IF: 0.455
- Herencia C, Martinez-Moreno JM, Herrera C, Corrales F, Santiago-Mora R, Espejo I, Barco M, Almaden Y, de la Mata M, Rodriguez-Ariza A, Munoz-Castaneda JR. Nuclear translocation of beta-catenin during mesenchymal stem cells differentiation into hepatocytes is associated with a tumoral phenotype. *Plos One*. 2012; 7(4): e34656. IF: 4.092

## Research Projects

Project Name: Role of intraoperative intraperitoneal chemotherapy with paclitaxel in radical surgical treatment of peritoneal carcinomatosis of ovarian origin: hyperthermia versus normothermia. (Sebastián Rufián Peña)

Funding body: Regional Ministry of Health and Social Welfare

File Number: 0678/2010

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Project Name: The biliary tract in liver transplantation: A global study by measuring o2 tissue microvoltage, microflowmetry and histology of the factors involved in the viability of the same (Rubén Ciria Bru)

Funding body: Regional Ministry of Health and Social Welfare

File Number: PI-0543-2012

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## Clinical trials

0026/07/EPA: A prospective study to assess the prevalence and clinical relevance of polymorphisms in genes encoding biotransformation enzymes and tacrolimus and mycophenolate mofetil carrier proteins in transplant patients

PI: Sebastián Rufián Peña

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1707: A study to assess the feasibility, validity and reliability of the three-day voiding diary in women attending functional urology urodynamics units. DM.3D Study

PI: Manuel Leva Vallejo

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0286/09: An open, multicenter, randomized, phase III trial on the therapeutic use of intraportal infusion of bone marrow mononuclear cells as autologous liver regeneration enhancer prior to liver resection

PI: Sebastián Rufián Peña

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1812: Assessment of the effectiveness and efficiency of a multifaceted intervention aimed at improving early empirical antibiotic therapy in severe sepsis

PI: Juan Carlos Pozo Laderas

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0239/11: Role of intraoperative intraperitoneal paclitaxel chemotherapy in radical surgical treatment of ovarian-origin peritoneal carcinomatosis: hyperthermia versus normotemia

PI: Sebastián Rufián Peña

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2084: Incidence and risk factors of mortality in critically ill patients with invasive fungal and filamentous disease (EFI): A prospective, observational, multicenter study.

PI: Juan Carlos Roble Ariza

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## Urology and Sexual Medicine

Associated Researcher: **María José Requena Tapia** [josefa.requena.sspa@juntadeandalucia.es](mailto:josefa.requena.sspa@juntadeandalucia.es)

Another Researcher: **Francisco Anglada Curado**

### Scientific Activity

This Group is centered on the study of urologic tumors from a new epidemiological approach and the search for diagnostic / prognostic markers. Additionally, this Group is involved in research on renal transplantation and developing new strategies to improve prognosis after organ transplantation.

In the field of sexual medicine, our group has focused its efforts on the study of erectile dysfunction (ED), especially on secondary ED, which is associated with radical prostatectomy. At present, we are looking for new invasive pharmacological therapeutic lines.

### Keywords

Bladder cancer, renal cancer, renal transplant, erectile dysfunction.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Requena	Tapia	María José	AR	Researcher
Anglada	Curado	Francisco	R	Researcher
Campos	Hernández	Pablo	R	Researcher
Prieto	Castro	Rafael	R	Researcher
Ruiz	Garcia	Jesús	R	Researcher
Márquez	López	Javier	R	Researcher
Cano	Castiñeira	Roque	R	Researcher
Pérez	Calle	Carmen	TR	Researcher
Criado	Larrumbe	Margarita	TR	Researcher
Blanca	Pedregosa	Ana María	PDR	Researcher
Carrasco	Valiente	Julia	PDR	Researcher

(\*) AR: Associated Researcher; R: Researcher; TR: Trainee Researcher; PDR: Postdoctoral Researcher

## Publications

Hernandez JPC, Castro RP, Lopez FJM, Carrillo AA, Carazo JLC, Curado FJA, Pedregosa AMB, Beltran AL, Tapia MJ. Analysis of the site of DNA fragmentation in infertile men with varicocele. *Revista Nacional de Andrologia*. 2012; 10(3):87-91. 2012  
IF: 0.213

Carrasco-Valiente J, Anglada-Curado FJ, Aguitar-Melero P, Gonzalez-Ojeda R, Muntane-Relat J, Padillo-Ruiz FJ, Requena-Tapia MJ. State of acute phase markers and oxidative stress in patients with kidney stones in the urinary tract. *Actas Urológicas*. 2012

Moreno-Rodríguez MM, Casco FG, Caro-Cuenca T, SantiagoAgredano B, Carrasco-Aznar JC. Epithelioid angiomyolipoma presenting as an urothelial. *Arch Esp Urol*. 2012; 65(7):702-5.

Lopez-Beltran A, Cheng L, Blanca A, Montironi R. Cell proliferation and apoptosis in prostate needle biopsies with adenocarcinoma Gleason score 6 or 7. *Analytical and Quantitative Cytology and Histology*. 2012; 34(2):61-65.  
IF: 0.413

Lopez-Beltran A, Vidal A, Montironi R, Kirkali Z, Munoz E, Blanca A, Cheng L. Lymphocytic vasculitis of the prostate transition zone. *BJU International*. 2012; 110(11):1775-1780.  
IF: 2.844

Lopez-Beltran A, Kirkali Z, Montironi R, Blanca A, Algaba F, Scarpelli M, Yorukoglu K, Hartmann A, Cheng L. Unclassified renal cell carcinoma: a report of 56 cases. *BJU International*. 2012; 110(6):786-793.

## Research Projects

Project Name: Broca Project (María José Requena Tapia)

Funding body: MINECO  
File Number: CCB.029PM

## Collaboration Agreements

Project Name: Collaboration between Gsk and Drs. Requena and Perula. Introduction to the Bayesian inference (María José Requena Tapia)

Funding body: Glaxosmithkline, S.A.  
File Number: CCB.0040

## Clinical Trials

0163/09: A randomized, double-blind, placebo-controlled study to evaluate the effect on the erectile function of the early use of tadalafil 5 mg once daily and tadalafil 20 mg on demand, administered for 9 months in patients undergoing prostatectomy  
PI: Rafaél Prieto Castro

1658: Epidemiological study estimating the incidence of prostate cancer in Spain 2010.  
PI: María José Requena Tapia

0216/10: Comparative efficacy of Combodart (r) and lifestyle patterns versus watchful waiting and lifestyle patterns with or without escalation to tamsulosin in the management of treatment of naive patients with moderate symptoms of prostatic hyperplasia  
PI: María José Requena Tapia

1735: Study to assess the impact of androgen deprivation therapy in the incidence of metabolic abnormalities in patients with prostate cancer  
PI: Francisco José Anglada Curado

1856: An epidemiological, observational study of disease progression and therapeutic approach in patients with prostate cancer  
PI: María José Requena Tapia

# AREA D

## **Integrative Medicine and New Technologies**

Coordinator: Rafael Medina Carnicer

- D-01** Applications of Artificial Vision

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- D-03** Genetics and Behavior Diseases

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- D-04** Metabolomics. Identification/Quantification of Bioactive Components

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- D-05** Epigenetics

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- DE-07** Identification of Antigenic Proteins for the Development of New Vaccines





## Applications of Artificial Vision

Head Researcher: Rafael Medina Carnicer. [rmedina@uco.es](mailto:rmedina@uco.es)

PAIDI Group TIC-161

### Scientific Activity

The main line of research of this group is focused on fundamental problems in artificial vision, which supports all the technology developed in the lines applied.

The activity of this group is centred on some basic topics and results in the publication of papers in impact reviews. The topics are as follows: Unsupervised segmentation of scenes, Tracking, unsupervised recognition of objects in a scene, Volumetric Reconstruction.

This group develops practical lines of research related to 2D and 3D Vision Systems Design for specific applications in biomedical or industrial environments. The latest activities of the Group were centred on unsupervised evaluation of human mobility, automatic calculation of the geometry of irregular objects for an optimal waste storage, fall risk prediction in the elderly and the development of automated X-ray analysis systems supporting the diagnosis of any type disease.

### Keywords

Unsupervised Segmentation, Edge detection, Histogram Thresholding, Hystéresis, Tracking, Points Dominant. 3D-Vision.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Medina	Carnicer	Rafael	HR	Coordinator of Area D
Carmona	Poyato	Ángel	R	Researcher
Fernández	García	Nicolás Luis	R	Researcher
Garrido	Castro	Juan Luis	R	Researcher
Madrid	Cuevas	Francisco José	R	Researcher
Marín	Jimenez	Manuel Jesús	R	Researcher
Muñoz	Salinas	Rafael	R	Researcher
Yeguas	Bolívar	Enrique	R	Researcher
Aguilera	Aguilera	Eusebio Jesús	TR	Researcher
Garrido	Jurado	Sergio	TR	Researcher
López	Fernández	David	TR	Researcher
López	Quintero	Manuel Ignacio	TR	Researcher
Mondéjar	Guerra	Victor Manuel	TR	Researcher

(\*) HR: Head Researcher; R: Researcher; TR: Trainee Researcher

## Publications

Garrido-Castro JL, Medina-Carnicer R, Schiottis R, Galisteo AM, Collantes-Estevez E, Gonzalez-Navas C. .Assessment of spinal mobility in ankylosing spondylitis using a video based motion capture system. *Manual Therapy*. 2012; 17(5);422-426.  
IF: 1.885

Diaz-Mas L, Madrid-Cuevas FJ, Munoz-Salinas R, Carmona-Poyato A, Medina-Carnicer R. An octree based method for shape from inconsistent silhouettes. *Pattern Recognition*. 2012; 45(9);3245-3255.  
IF: 2.292

Yeguas E, Munoz-Salinas R, Medina-Carnicer R. Example based procedural modelling by geometric constraint solving. *Multimedia Tools and Applications*. 2012; 60(1);1-30.  
IF: 0.617

Munoz-Salinas R, Yeguas-Bolivar E, Saffiotti A, Medina-Carnicer R. .Multi-camera head pose estimation. *Machine Vision and Applications*. 2012; 23(3);479-490.  
FI: 1,009

Munoz-Salinas R, Yeguas-Bolivar E, Diaz-Mas L, Medina-Carnicer R. Shape from pairwise silhouettes for plan-view map generation. *Image and Vision Computing*. 2012; 30(2);122-133.  
FI: 1,723

Diaz-Mas L, Munoz-Salinas R, Madrid-Cuevas FJ, Medina-Carnicer R. Three-dimensional action recognition using volume integrals. *Pattern Analysis and Applications*. 2012; 15(3);289-298.  
FI: 0,739

Carmona-Poyato, A., Medina-Carnicer, R., Muñoz-Salinas, R., Yeguas-Bolivar, E. On stop conditions about methods to obtain polygonal approximations relied on break point suppression. *Image and Vision Computing*. 2012. 30 (8);513-523.  
IF: 1.723

## Research Projects

Project Name: 3D Vision system without markers for unsupervised assessment of mobility (Rafael Medina Carnicer)  
Funding body: MICINN  
File number: TIN2010-18119

Project Name: 3D Vision system without markers for unsupervised assessment of mobility (Rafael Medina Carnicer)  
Funding body: MINECO  
File number: TIN2012-32952  
2013 Annuity

## Collaboration Agreements

Project Name: Development of a 3D vision system, based on structured light with ability to calculate volumes and surfaces of small bodies (Rafael Medina Carnicer)  
Funding body: Enresa

Project Name: Integration of virtual reality on a virtual welder (Rafael Muñoz Salinas)  
Funding body: Seabery

Project Name: Implementation of a 3D vision system (SVCS) for determining irregular object geometries in CN. Jose Cabrera (Rafael Medina Carnicer)  
Funding body: Enresa



## Genetics and Behavior Diseases

Head Researcher: Manuel Ruiz Rubio. [ge1rurum@uco.es](mailto:ge1rurum@uco.es)

PAIDI Group BIO-272

### Scientific Activity

Significant progress is being made nowadays in our understanding of the genetic basis of autism. Many of the genes involved encode proteins which are involved in synaptic function. *Caenorhabditis elegans* is an organism which constitutes an ideal model for studying synapse interactions because it only has about 300 neurons, and these are well characterized. In *C. elegans* there are genes which are orthologous to the human genes involved in autism, which encode proteins involved in the synapse. We have characterized mutants in some of these genes by observing changes in behaviour, as well as in response to chemical compounds that interfere with neurotransmitters, such as gamma-aminobutyric acid (GABA) or acetylcholine. The use of *C. elegans* as a model organism allows us to create an experimental setting that facilitates the genetic study of synaptic components. With the results obtained, our long term aim is to extrapolate them to humans and be able to explain the neurobiological mechanisms involved in the etiology of autism and other developmental diseases.

On the other hand, the members of the Unit for Child and Adolescent Mental Health (USMI-J) are conducting a detailed phenotypic analysis of a sample of patients diagnosed with autism in order to establish distinctive features and to determine whether autism can be associated in the future with specific genetic or environmental alterations.

### Keywords

Autism, pervasive developmental disorders, neuronal synapses, postsynaptic density, *C. elegans* as a model organism in synaptic function.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Ruiz	Rubio	Manuel	HR	Researcher
Alejandro	Durán	Encarna	R	Researcher
Burgos	Marín	Rafael	R	Researcher
Guijarro	Granados	Teresa	R	Researcher
Martín	Borreguero	Pilar	R	Researcher
Romero	Balsera	María Auxiliadora	R	Researcher
Sánchez	Vázquez	Vicente	R	Researcher
Tienda	Carril	Pilar	R	Researcher
González	Izquierdo	Patricia	TR	Researcher
Calahorro	Núñez	Fernando	PDR	Researcher

(\*) HR: Head Researcher; R: Researcher; TR: Trainee Researcher; PDR: Post-doctoral researcher

## Publications

Calahorro F, Ruiz-Rubio M. Functional Phenotypic Rescue of *Caenorhabditis elegans* Neuroigin-Deficient Mutants by the Human and Rat NLGN1 Genes. *Plos One*. 2012; 7(6):e39277-.  
IF: 4.092

## Research Projects

Project Name: Using *Caenorhabditis elegans* as an experimental model in the study of autism. Molecular mechanism of the synaptic function (Manuel Ruiz Rubio)  
Funding body: Regional Ministry of Health and Social Welfare  
File number: 0197/2009

## Provision of Services to third parties

Project Name: *Caenorhabditis elegans* as models of neurological diseases (Manuel Ruiz Rubio)  
Funding body: Regional and Industrial Developing Center.  
Collaborating company: Canvax Biotech S.L.  
File number: INTER.0002



## Metabolomics Identification/Quantification of Bioactive Components

Head Researcher: M<sup>a</sup> Dolores Luque de Castro. qa1lucam@uco.es

PAIDI Group FQM-227

### Scientific Activity

This group deals mainly with the development of analytical methods in which the preparation stage of the sample, as required, is fully or partially automated with the help of dynamic systems and is accelerated by auxiliary energies such as microwaves, ultrasound or pressure + temperature (overheated liquids). In the analysis stage, the very latest equipment is used (GC-MS/MS, Quad-triple HPLC, HPLC-Q-TOF) to achieve maximum sensitivity, selectivity and precision. The group carries out research in the area of metabolomics and to a lesser extent, in proteomics. In the former, most of its contributions have been aimed at lipidomics, nutrimental metabolomics and the search for biomarkers of bone metabolism. One research line linked to this is the utilization of agricultural residues and feeding industries to obtain high value-added products for the production of nutraceuticals, food supplements and natural dyes.

Another area of interest for the group is the study of the degradation pathways of toxic compounds using auxiliary energy.

### Keywords

Metabolomics, proteomics, metabolites, biomarkers, analytical platforms, nutraceuticals, food supplements, preparation of samples, degradation assisted by auxiliary energy.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Luque	De Castro	María Dolores	HR	Researcher
Priego	Capote	Feliciano	PDR	Researcher
Alcaide	Molina	Miguel	R	Researcher
Delgado	De La Torre	María Pilar	R	Researcher
Ruiz	Jiménez	José	R	Researcher
Calderón	Santiago	Mónica	TR	Researcher
Fernández	Peralbo	María Auxiliadora	TR	Researcher
Ferreiro	Vera	Carlos	TR	Researcher
Orozco	Solano	María Isabel	TR	Researcher
Peralbo	Molina	Ángela	TR	Researcher
Sánchez De Medina	Baena	Verónica	TR	Researcher

(\*) HR: Head Researcher; PDR: Post-Doctoral Researcher R: Researcher; TR: Trainee Researcher

## Publications

- Ruiz-Jimenez J, Hautala S, Parshintsev J, Laitinen T, Hartonen K, Petaja T, Kulmala M, Riekkola ML. Aliphatic and aromatic amines in atmospheric aerosol particles: Comparison of three ionization techniques in liquid chromatography-mass spectrometry and method development. *Talanta*. 2012; 97:55-62. IF: 3.794
- Ramirez-Boo M, Priego-Capote F, Hainard A, Gluck F, Burkhard P, Sanchez JC. Characterization of the glycosylated human cerebrospinal fluid proteome. *Journal of Proteomics*. 2012; 75(15):4766-4782. IF: 4.787
- Peralbo-Molina A, Priego-Capote F, de Castro MDL. Comparison of extraction methods for exploitation of grape skin residues from ethanol distillation. *Talanta*. 2012; 101:292-298. IF: 3.794
- Ruiz-Jimenez J, Parshintsev J, Laitinen T, Hartonen K, Petaja T, Kulmala M, Riekkola ML. Influence of the sampling site, the season of the year, the particle size and the number of nucleation events on the chemical composition of atmospheric ultrafine and total suspended particles. *Atmospheric Environment*. 2012; 49:60-68. IF: 3.465
- Fernandez-Peralbo MA, de Castro MDL. Preparation of urine samples prior to targeted or untargeted metabolomics mass-spectrometry analysis. *Trac-Trends in Analytical Chemistry*. 2012; 41:75-85. IF: 6.273
- Alvarez-Sanchez B, Priego-Capote F, Luque de Castro MD. Study of sample preparation for metabolomic profiling of human saliva by liquid chromatography-time of flight/mass spectrometry. *Journal of Chromatography A*. 2012; 1248:178-181. IF: 4.531
- Peralbo-Molina, Angela; Priego-Capote, Feliciano; Luque de Castro, Maria Dolores. Tentative identification of Phenolic Compounds in Olive Pomace Extracts Using Liquid Chromatography tandem Mass Spectrometry with a Quadrupole-Quadrupole-Time-of-Flight Mass Detector. *Journal of Agricultural and Food Chemistry*. 2012; 60(46):11542-11550. IF: 2.823
- de Medina VS, Priego-Capote F, de Castro MDL. Characterization of Refined Edible Oils Enriched with Phenolic Extracts from Olive Leaves and Pomace. *Journal of Agricultural and Food Chemistry*. 2012; 60(23):5866-5873. IF: 2.823
- de Castro MDL, Fernandez-Peralbo MA. Analytical methods based on exhaled breath for early detection of lung cancer. *Trac-Trends in Analytical Chemistry*. 2012; 38:13-20. IF: 6.273
- Orozco-Solano, M I; Ferreiro-Vera, C; Priego-Capote, F; Luque de Castro, MD. Automated method for determination of olive oil phenols and metabolites in human plasma and application in intervention studies. *Journal of Chromatography A*. 2012; 1258:108-116. IF: 4.531
- de Medina VS, Priego-Capote F, de Castro MDL. Characterization of Refined Edible Oils Enriched with Phenolic Extracts from Olive Leaves and Pomace. *Journal of Agricultural and Food Chemistry*. 2012; 60(23):5866-5873. IF: 2.823
- Calderon-Santiago M, Peralbo-Molina A, Priego-Capote F, de Castro MDL. Cholesterol oxidation products in milk: Processing formation and determination. *European Journal of Lipid Science and Technology*. 2012; 114(6):687-694. IF: 1.733
- Delgado-Torre MP, Ferreiro-Vera C, Priego-Capote F, Perez-Juan PM, de Castro MDL. Comparison of accelerated methods for the extraction of phenolic compounds from different vine-shoot cultivars. *Journal of Agricultural and Food Chemistry*. 2012; 60(12):3051-3060. IF: 2.823
- Ferreiro-Vera C, Priego-Capote F, de Castro MDL. Comparison of sample preparation approaches for phospholipids profiling in human serum by liquid chromatography-tandem mass spectrometry. *Journal of Chromatography A*. 2012; 1240:21-28. IF: 4.531
- Calderon-Santiago M, Priego-Capote F, Galache-Osuna JG, de Castro MDL. Determination of essential aminoacids in human serum by a targeting method based on automated SPE-LC-MS/MS: Discrimination between arteriosclerotic patients. *Journal of Pharmaceutical and Biomedical Analysis*. 2012; 70:476-484. IF: 2.967
- Delgado de la Torre MP, Priego-Capote F, Luque de Castro MD. Evaluation of the Composition of Vine Shoots and Oak Chips for Oenological Purposes by Superheated Liquid Extraction and High-Resolution Liquid Chromatography-Time-of-Flight/Mass Spectrometry Analysis. *Journal of Agricultural and Food Chemistry*. 2012; 60(13):3409-3417. IF: 2.823
- Rojano-Delgado AM, Cruz-Hipolito H, De Prado R, de Castro MDL, Franco AR. Limited uptake, translocation and enhanced metabolic degradation contribute to glyphosate tolerance in *Mucuna*

pruriens var utilis plants. *Phytochemistry*. 2012; 73:34-41.  
IF: 3.351

El Riachy M, Priego-Capote F, Rallo L, Luque-de Castro MD, Leon L. Phenolic composition of virgin olive oils from cross breeding segregating populations. *European Journal of Lipid Science and Technology*. 2012; 114(5):542-551.  
IF: 1.733

El Riachy M, Priego-Capote F, Rallo L, de Castro MDL, Leon L. Phenolic profile of virgin olive oil from advanced breeding selections. *Spanish Journal of Agricultura Research*. 2012; 10(2):443-453.  
IF: 0.615

De Carvalho LB, Alves PLDA, Gonzalez-Torralva F, Cruz-Hipolito HE, Rojano-Delgado AM, De Padro R, Gil-Humanes J, Barro F, de Castro MDL. Pool of Resistance Mechanism to Glyphosate in *Digitaria insularis*. *Journal of Agricultural and Food Chemistry*. 2012; 60(2):615-622.  
IF: 2.823

El Riachy M, Priego-Capote F, Leon L, de Castro MDL, Rallo L. Virgin olive oil phenolic profile and variability in progenies from olive crosses. *Journal of the Science of Food and Agriculture*. 2012; 92(12):2524-2533.  
IF: 1.436

Perez-Herrera A, Delgado-Lista J, Torres-Sanchez LA, Rangel-Zuniga OA, Camargo A, Moreno-Navarrete JM, Garcia-Olvid B, Quintana-Navarro GM, Alcalá-Díaz JF, Muñoz-López C, López-Segura F, Fernández-Real JM, Luque de Castro MD, López-Miranda J, Pérez-Jiménez F. The postprandial inflammatory response after ingestion of heated oils in obese persons is reduced by the presence of phenol compounds. *Molecular Nutrition & Food Research*. 2012; 56(3):510-514.  
IF: 4.301

## Research Projects

Project Name: Development of analytical metabolomic platforms to identify cardiac biomarkers and contribute to the design of individualized diets (M<sup>a</sup> Dolores Luque De Castro)  
Funding body: MICINN  
File number: CTQ2009-07430

Project Name: Development of analytical platforms for the identification of biomarkers of glycosylated proteins: Application to diabetic patients (Feliciano Priego Capote)  
Funding body: Regional Ministry of Innovation, Science and Business  
File number: P10-FQM-6420

Project Name: Study of the importance of ultrasound frequency in improving sample preparation stages in proteomics, metabolomics and degradation processes (Maria Dolores Luque de Castro)  
Funding body: Spanish Ministry of Science and Innovation  
File number: CTQ2012-37428  
2013 Annuity

## Collaboration Agreements

Project Name: Completing the development of a method for determining gelatin tannate in pharmaceutical preparations. Characterization and stability study (Maria Dolores Luque de Castro)  
Funding body: Novintethical Pharma

Project Name: Developing lecture delivery methods in collaboration with Agilent (Maria Dolores Luque de Castro)  
Funding body: Novintethical Pharma

Project Name: Determining vitamin D metabolites through HPLC-MS/MS (Maria Dolores Luque de Castro)  
Funding body: DIAsource Immunoassays, S.A.

Project Name: Performance of analyses for companies and other entities (Maria Dolores Luque de Castro)  
Funding body: Several companies and organisations

Project Name: Completing the development of active plant compound extraction methods for their identification and quantification (M<sup>a</sup> D. Luque de Castro)  
Funding body: Phytoplant Research, S. L.





## Epigenetics

Head Resercher: Teresa Roldán Arjona. [ge2roarm@uco.es](mailto:ge2roarm@uco.es)

### Scientific Activity

Our scientific activity is focused on the study of the mechanisms involved in maintaining genome and epigenome stability. Our group has found genetic and biochemical evidence for the existence of a mechanism for active demethylation of DNA in plants. We have identified a family of proteins, whose prototype is ROS1 and DME, which exhibit 5-methylcytosine 5-DNA glycosylase activity, and initiate the deletion of 5-mec by a mechanism analogous to the Base Excision Repair (BER). Using genetic and molecular approaches, we have characterized in detail the biochemical activity of this new family of enzymes. In addition we have identified other proteins involved in this mechanism of epigenetic reprogramming. We are currently investigating the relevance of the base repair system in the maintenance and control of genetic and epigenetic information. In addition, we intend to analyze the relationship between this new route for demethylation of DNA and different modifications in the structure of chromatin. Finally, we are exploring the feasibility of using ROS1 and DME to initiate a controlled demethylation of DNA in human cells.

### Keywords

Genetics, Epigenetics, Mutagenesis, DNA repair, DNA methylation, gene regulation.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Roldán	Arjona	M <sup>a</sup> Teresa	HR	Researcher
Rodríguez	Ariza	Rafael (I)	R	Researcher
Martínez	Macías	M <sup>a</sup> Isabel	TR	Researcher
Parrilla	Doblas	Jara Teresa	TR	Researcher
Ponferrada	Marín	M <sup>a</sup> Isabel	TR	Researcher
Ramiro	Merina	Ángel	TR	Researcher
García	Ortíz	M <sup>a</sup> Victoria	PDR	Researcher
Morales	Ruiz	M <sup>a</sup> Teresa	PDR	Researcher

(\*) HR: Head Researcher; R: Researcher; PDR: Post-doctoral Researcher; TR: Trainee Researcher  
(I) PAIDI Group BIO-301

## Publications

Martinez-Macias MI, Qian WQ, Miki D, Pontes O, Liu YH, Tang K, Liu RY, Morales-Ruiz T, Ariza RR, Roldan-Arjona T, Zhu JK. A DNA 3' Phosphatase Functions in Active DNA Demethylation in Arabidopsis. *Molecular Cell*. 2012; 45(3):357-370.  
IF: 14.178

Ponferrada-Marin, Maria Isabel; Roldan-Arjona, Teresa; Ariza, Rafael R. Demethylation initiated by ROS1 glycosylase involves random sliding along DNA. *Nucleic Acids Research*. 2012; 40(22):11554-11562.  
IF: 8.026

## Research Projects

Project Name: Epigenetic reprogramming through DNA demethylation. (M<sup>a</sup> Teresa Roldán Arjona)

Funding body: Regional Ministry of Innovation, Science and Business  
File number: P07-CVI-02770

Project Name: DNA demethylation: basic molecular mechanisms and their relevance to the reversal of epigenetic silencing (M<sup>a</sup> Teresa Roldán Arjona)

Funding body: MICINN  
File number: BFU2010-18838

Project Name: Molecular mechanisms of DNA demethylation and implications in epigenome reprogramming (M<sup>a</sup> Teresa Roldán Arjona)

Funding body: Regional Ministry of Economy, Innovation, Science and Employment  
File number: CVI-7576  
2013 Annuity



## Identification of Antigenic Proteins for the Development of New Vaccines

Emerging Researcher: Manuel José Rodríguez Ortega. [mjrodriguez@uco.es](mailto:mjrodriguez@uco.es)

### Scientific Activity

Our group studies the surface proteins of different pathogenic bacteria from the genus *Streptococcus* and *Staphylococcus*, with the aim of discovering new candidates for more effective vaccines. Surface proteins are fundamental in the interaction between cells and their environment, and are the best potential targets for drug and vaccine development. We carry out the selection of protein candidates by different strategies of proteomics, mainly based on a second-generation proteomics approach ("shotgun proteomics"), in which peptides are obtained from the surface-exposed domains of living cells by digestion with proteases. These peptides are then analyzed and identified by two-dimensional chromatography coupled with tandem mass spectrometry. The most interesting proteins enter the recombinant production line and are used in protection trials against infection in animal models. These experimentally identified proteins are used to develop serologic diagnostic tools (based on protein chips and Luminex technology) that allow early detection against infection. They can be used in surveillance programs.

### Keywords

Surface proteins, immunogens, antigens, vaccines, bacteria, proteomics, 2-D LC/MS/MS, mass spectrometry, chromatography, electrophoresis, serodiagnosis, protein chips, Luminex.

## Groups Members

Surname 1	Surname 2	Name	Category (*)	Post
Rodríguez	Ortega	Manuel José	ER	Researcher
Gómez	Gascón	Lidia	TR	Researcher
Jiménez	Munguía	Irene	TR	Researcher
Olaya	Abril	Alfonso	TR	Researcher

(\*) ER: Emerging Researcher; TR: Trainee Researcher.

## Publications

Olaya-Abril A, Gomez-Gascon L, Jimenez-Munguia I, Obando I, Rodriguez-Ortega MJ. Another turn of the screw in shaving Gram-positive bacteria: Optimization of proteomics surface protein identification in *Streptococcus pneumoniae*. *Journal of Proteomics*. 2012; 75(12): 3733-3746. IF: 4.878

Gomez-Gascon L, Luque I, Olaya-Abril A, Jimenez-Munguia I, Orbegozo-Medina RA, Peralbo E, Tarradas C, Rodriguez-Ortega MI. Exploring the pan-surface of *Streptococcus suis*: Looking for common protein antigens. *Journal of Proteomics*. 2012; 75(18): 5654-5666. IF: 4.878

## Research Projects

Project Name: Selected protein candidates for streptococcus pneumoniae vaccines through new proteomic strategies (Manuel José Rodríguez Ortega) (extended)  
Funding body: Spanish Ministry of Science and Innovation  
File number: SAF2008-00733

Project Name: Selected protein candidates for streptococcus pneumoniae vaccines through new proteomic strategies (Manuel José Rodríguez Ortega) (extended)  
Funding body: Regional Ministry of Innovation, Science and Business  
File number: P09-CTS-4616

Project Name: Identification through proteomics of protein candidates for developing new vaccines and diagnostic chips against *Streptococcus pneumoniae* (Manuel José Rodríguez Ortega)  
Funding body: Regional Ministry of Health and Social Welfare  
File number: 0207/2010

Project Name: Luminex technique applied to epidemiological surveillance of pneumococcal disease and study of humoral innate immunity against surface proteins. Relationship with colonization. Manuel José Rodríguez Ortega  
Funding body: Carlos III Health Institute  
File number: PI12/O1259  
2013 Annuity

09

Dissemination of Scientific  
Results

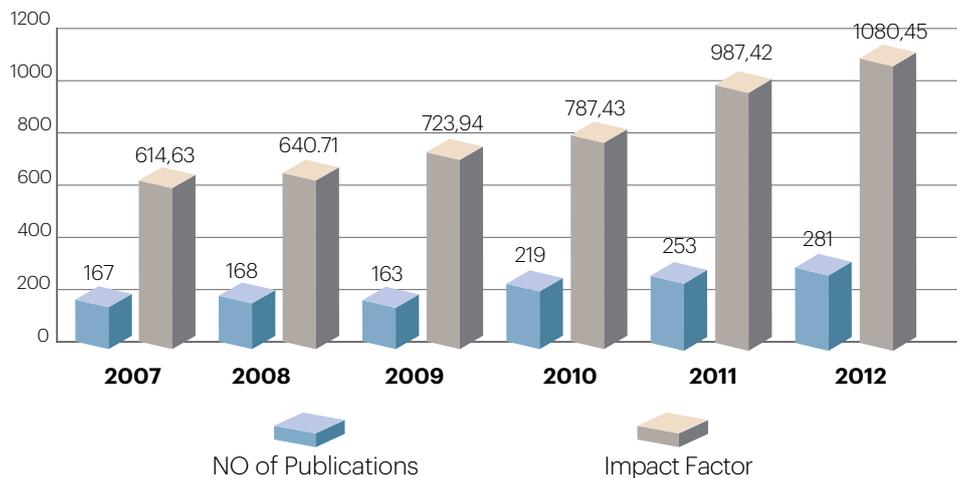


### 9.1 List of publications

The scientific work carried out by researchers in their respective groups has led to the following global production:

- From a total of 284 published articles, 281 are indexed and three are un-indexed. The quality of the IMIBIC's scientific production improved significantly in 2012, since 23% of the papers published were in the first decile and 31% were in the fourth quartile.
- A total Impact Factor of 1080,45 points, with a mean Impact Factor of 2.84 (including only indexed items)

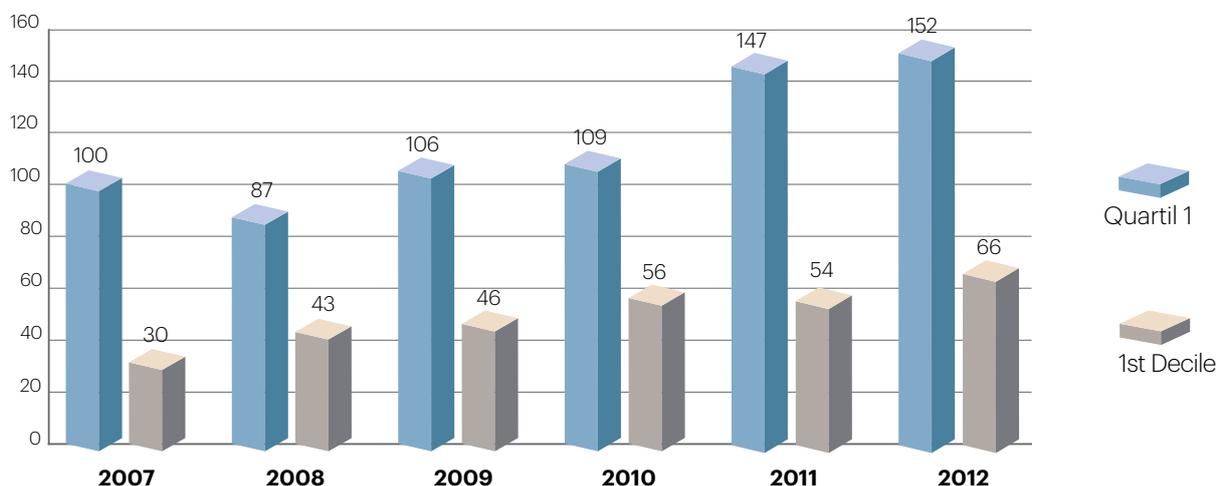
The figure below shows the evolution of the TR of our publications in the last five years:

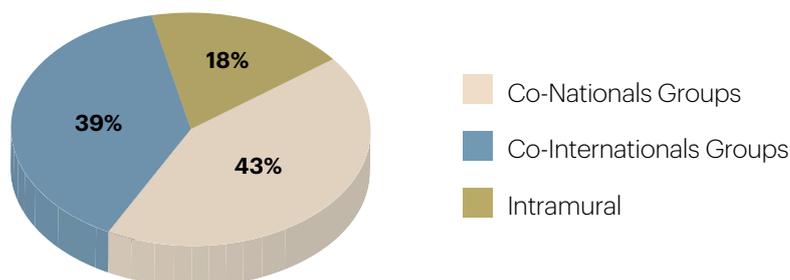


By authors, IMIBIC researchers were listed as the lead author in 44% of publications and as contributors in 12% of publications, while they appeared as co-authors in the remaining 44% of publications.

In turn, these publications are concentrated mainly in journals in the first two quartiles, which vouches for the scientific quality of the papers published.

As to the authors' affiliation, the table below shows the percentage of studies conducted in collaboration with other groups:





## 9.2 List of journals where our work has been published

In 2012, IMIBIC researchers published their articles in a total of 231 different journals, which are listed below:

DOMEST ANIM ENDOCRINOL	J MOL CELL BIOL	DIABETES OBES METAB
J AGRIC FOOD CHEM	MOL CELL ENDOCRINOL	DIABETOLOGIA
J SCI FOOD AGRIC	CELL TISSUE BANKING	ENDOCRINOLOGY
SPAN J AGRIC RES	MECH AGEING DEV	EUR J ENDOCRINOL
ALLERGOL IMMUNOPATH	IMMUNOL CELL BIOL	GEN COMP ENDOCR
J INVEST ALLERGOL CLIN IMMUNOL	HISTOCHEM CELL BIOL	METAB CLIN EXP
J ASTHMA	HISTOPATHOLOGY	NAT REV ENDOCRINOL
INT J ANDROL	TALANTA	J BIOL REGUL HOMEOST AGENTS
J ANDROL	TRAC-TRENDS ANAL CHEM	ENDOCRINOLOGY
EXPERT REV. PROTEOMICS	J PHARMA BIOMED ANAL	J NEUROENDOCRINOL
J PROTEOME RES	PHYTOTHER RES	INT J OBES
J PROTEOMICS	NEW J CHEM	ENDROCR PATHOL
PROTEOMICS	MOLECULES	AM J PHYSIOL-ENDOCRINOL METAB
J CHROMATOGR A	REV NEUROL	ATMOS ENVIRON
BIOCHEM J	AM J NEURORADIOL	ENVIRON MICROBIOL REP
J BIOL CHEM	CURR ALZHEIMER RES	ECOTOX ENVIRON SAFE
J LIPID RES	J NEUROL SCI	MOL NUTR FOOD RES
NUCLEIC ACIDS RES	J SLEEP RES	EUR J LIPID SCI TECHNOL
FASEB J	MUSCLE NERVE	GASTROENTEROL HEPATOL
BIOCHIM BIOPHYS ACTA-MOL CELL RES	NEUROL RES	HEPATOLOGY
CELL	PEDIATR NEUROL	INFLAMM BOWEL DIS
MOL CELL	PATTERN ANAL APPL	J HEPATOL
ANTIOXID REDOX SIGNAL	MACH VIS APPL	REV ESP ENFERM DIG
FREE RADICAL BIO MED	IMAGE AND VIS COMPUT	ALIMENT PHARMACOL THER
ONCOGENE	PATTERN RECOGNIT	ANDOM IMAGING
PEPTIDES	MULTIMED TOOLS APPL	LIVER TRANSPLANT
J PHYSIOL BIOCHEM.	CRIT CARE MED	AGE
PHYTOCHEMISTRY	INTENSIVE CARE MED	J AM GERIATR SOC
BONE MARROW TRANSPLANT	MED INTENSIV	J GERONTOL SER A-BIOL SCI MED SCI
J BIOMED BIOTECHNOL	MED ORAL PATOL ORAL CIR BUCAL	AM J HEMATOL
CATHETER CARDIOVASC INTERV	AM J DERMATOPATH	BLOOD
ECHOCARDIOGRAPHY-J CARDIOVASC	ARCH DERMATOL	BRIT J HAEMATOL
EUROINTERVENTION	J EUR ACAD DERMATOL VENEREOL	HAEMOPHILIA
J HEART VALVE DIS	DERMATOL SURG	THROMB RES
REV ESP CARDIOL	AM J EMERG MED	BLOOD PURIF
NUTR METAB CARBIOVASC DIS	EMERGENCIAS	CLIN DEV IMMUNOL
EUR J CARDIO-THORAC SURG	CALCIF TISSUE INT	SEMIN IMMUNOL
J HEART LUNG TRANSPLANT	DIABETES	JAIDS
ANAL QUANT CYTOL HISTOL	DIABETES CARE	CLIN INFECT DIS

CLIN VACCINE IMMUNOL  
 TRANSPL INFECT DIS  
 AIDS  
 INT J IMMUNOPATHOL PHARMACOL  
 INT IMMUNOPHARMACOL  
 IMMUNOPHARMACOL IMMUNOTOXICOL  
 TRANSPLANT PROC  
 TRANSPLANTATION  
 VIRAL IMMUNOL  
 CLIN MICROBIOL INFECT  
 J HOSP INFECT  
 CLIN MICROBIOL INFECT  
 ENFERM INFEC MICROBIOL CLIN  
 EUR J CLIN MICROBIOL INFECT DIS  
 J ANTIMICROB CHEMOTHER  
 ANTIVIR THER  
 EUR J OPER RES  
 CLIN BIOCHEM  
 ANN SAUDI MED  
 GENDER MED  
 INTERN MED  
 MED CLIN-BARC  
 MED.-BUENOS AIRES  
 REV CLIN ESP  
 CLIN SCI  
 CURR MOL MED  
 J CLIN INVEST  
 ANTIMICROB AGENTS CHEMOTHER  
 REV ESP QUIM  
 PLOS ONE  
 BRAIN RES  
 J NEUROSCI  
 NEUROSCIENCE  
 J NEUROIMMUNE PHARM  
 PSYCHOPHARMACOLOGY  
 J ADV NURS  
 REV LATINO-AM ENFERMAGEM  
 BRIT J NUTR  
 INT J VITAM NUTR RES  
 J NUTR  
 NUTR HOSP  
 BJOG  
 MENOPAUSE-J N AM MENOPAUSE SOC  
 FERTIL STERIL  
 HUM REPROD  
 HUM REPROD UPDATE  
 ANN ONCOL  
 CANCER METASTASIS REV  
 CANCER RES  
 CLIN COLORECTAL CANC  
 CLIN TRANSL ONCOL  
 LANCET ONCOL  
 ONCOLOGIST  
 J PEDIATR HEMATOL ONCOL  
 J PATHOL  
 RADIOTHER ONCOL  
 KNEE SURG SPORTS TRAUMATOL ARTHROSC  
 ACTA OTO-LARYNGOL  
 AN PEDIATR  
 ATHEROSCLEROSIS  
 J CLIN HIPERTENS  
 CURR DRUG TARGETS  
 PHARMACOL RES  
 PHYSIOL REV  
 AM J PHYSIOL RENAL PHYSIOL  
 J PLANT PHYSIOL  
 J NAT PROD  
 ATEN PRIM  
 BMC FAM. PRACT.  
 PHYSIOL BEHAV  
 PSYCHOPHYSIOLOGY  
 PUBLIC HEALTH NUTR  
 BRIT J RADIOL  
 J VASC INTERV RADIOL  
 MAN THER  
 ARCH PHYS MED REHAB  
 EUR RESP J  
 ANN RHEUM DIS  
 BEST PRACT RES. CLIN RHEUMATOL  
 J RHEUMATOL  
 RHEUMATOLOGY  
 SCAND J RHEUMATOL  
 EUR J SPORT SCI  
 CIR CIR  
 CIR ESPAN  
 J SURG RES  
 PLAST RECONSTR SURG  
 AM J TRANSPLANT  
 TRANSPL INT  
 NEPHROL DIAL TRANSPLANT  
 ACTAS UROL ESP  
 BJU INT  
 EUR UROL  
 J AM SOC NEPHROL  
 J NEPHROL  
 KIDNEY INT  
 NEFROLOGIA  
 CAN VET J REV VET CAN  
 J EQUINE VET SCI  
 J SMALL ANIM PRACT  
 PFERDEHEILKUNDE  
 J VIROL  
 PAK J ZOOL  
 HEPATOLOGY  
 MED CLIN



10

Knowledge Transfer



## 10- Knowledge Transfer

In the framework of IMIBIC's highly innovative and excellence research project, the efficient management of the knowledge generated is crucial. IMIBIC's department of innovation management is responsible for protecting research results obtained by its research groups.

In this knowledge-based model, information flows among national R&D agents are essential for the sustainability and evolution of the research system. In this regard, the Transfer of Technology is key for an efficient knowledge translation and conversion into value added in economic and social terms. The Knowledge Transfer is critical for an appropriate balance and flow of information from the generation of knowledge obtained by the public bodies and the exploitation of results by the industry. The Knowledge Transfer is a transversal discipline requiring well-trained professionals in areas such as Law, Science or Economy for an efficient management of knowledge. Thus, it is very important to implement a system for the control, management and follow-up of industrial and intellectual property rights. This control system should help identify and properly manage the knowledge that should be protected. For instance, this system should provide information on the potential market for the innovation, determine whether it can be converted into a technological innovation, establish the protection level and model (patent, utility model, design, intellectual property...).

To accomplish these tasks, the IMIBIC's Innovation Management Department has designed a simple mechanism that favours interaction with researchers and technology developers so that the appropriate steps can be taken to protect the innovation as soon as an initial data evaluation has been performed.

Once the innovations to be protected are identified, a work plan specifying the best protection strategy is designed and implemented. This work plan includes the following landmarks:

- Performing a patentability study and preparing a patent application form.
- Managing patent applications, utility models, designs, intellectual property rights, etc.
- Managing international patent applications
- Document management and follow-up of applications
- Management of agreements with third parties such as confidentiality agreements, collaboration agreements, etc

This system allows the detection and development of new health technologies and favors the introduction of a culture of innovation management.

In this framework, the Innovation Management Department performed the following activities in 2012:

1. Certification of the Innovation Management Department as an "OTRI" (Knowledge Transfer Office) by the Spanish Ministry of Economy and Competitiveness. On July 3, 2012, this department was approved for registration as an OTRI in the Ministry of Economy's Register under the code 251.
2. Integration of FIBICO-IMIBIC as a collaborating partner in the ITEMAS network (Health and Medical Technologies Network). IMIBIC's application for integration was approved by ITEMAS on November 28, 2012 .
3. ITEMAS is one of the Cooperative Thematic Health Research Networks (RETICS) promoted by the Health Institute Carlos III (ISCIII) as a component of the translational research strategy. ITEMAS fosters innovation in health technologies as an essential instrument for making a more sustainable National Health System. This network also supports the development of an innovation-based culture, which is necessary to facilitate the integration of the science-industry system in the field of medical technologies. The core of items is composed of innovation units from 14 large hospitals of the National Health System.
4. An Innovation Committee has been set up at the Reina Sofia University Hospital, Cordoba, under the responsibility of the IMIBIC's Innovation Management Department. This committee is intended for generating an "innovation radars" network in order to promote and detect the development of new health technologies, products and services. This committee also fosters the development of innovative initiatives at the Reina Sofia Hospital and at IMIBIC in Cordoba, paying special attention to local social and health problems.
5. More than 90 meetings with researchers. This meetings were aimed at explaining the process of technology transfer to the researchers and identifying research ideas, innovations and results with the po-

tential to generate industrial and intellectual property.

6. IMIBIC personnel have participated as lecturers in several congresses, meetings and conferences, where they could contact numerous corporations to offer IMIBIC services and establish collaboration agreements:

- BIOSPAIN 2012
- MIHealth 2012
- TRANSFIERE Málaga 2012
- ALIMENTARIA 2012

- ASEBIO Work Group
- IDOM Work Group
- 8th ACADEMIC CONFERENCE IN OTOLGY RHINOLOGY AND LARYNGOLOGY: "NEW FRONTIERS IN TRANSLATIONAL RESEARCH"
- BIN@PORTO 2012

7. A new work group on Technology Transfer has been set up under the responsibility of the Health Institute Carlos III, where IMIBIC is a prominent member.

The table below shows the results of the intense work done:

	2007	2008	2009	2010	2011	2012
Patents	1	4	1	4	4	6
PCTs	0	0	1	1	3	4
Licenses	0	0	0	0	0	4
Corporations	0	0	0	0	1	2

### Intellectual/Industrial Property Registry

Reference	Name	Type of registry	Holder
IMIBIC-44	Kir3ds1	National patent	SAS,UCO
IMIBIC-45	Calcitrol	National patent	SAS
IMIBIC-46	Angiotensina	National patent	SAS
IMIBIC-47	Oleuropein compositions for the healing of injuries and ulcers in elderly and / or patients with diabetes.	National phase patent	SANYRES, SAS and QUESPER
IMIBIC-48	Thoracic retractor	National patent	SAS
IMIBIC-49	Padmed	Intellectual Property Registry	SAS and UCO
IMIBIC-50	Padmed ios	Intellectual Property Registry	SAS and UCO
IMIBIC-51	Single-port laparoscopy	Pct	SAS
IMIBIC-36	Olive oil phenol compound	Pct	IMIBIC, SAS and UCO
IMIBIC-52	Identification of useful drugs for cardiovascular diseases	Pct	SAS/US

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Objectives for the Year 2013



1.	Developing a platform to provide a quality service aimed at attracting both commercial and non-commercial clinical trial assignments..
2.	Promoting the transfer of research results to clinical practice and to the socio-economic environment.
3.	Intensifying IMIBIC's relationships with national and international research centres and corporations in order to improve cooperation in research.
4.	Acquiring new equipment and facilities for the new IMIBIC headquarters.
5.	Promoting initiatives to increase private fund-raising and sponsorship.
6.	Promoting communication and relationships between the IMIBIC and its researchers to progressively create a sense of belonging to this institution.
7.	Continuing the development of the Unidad Central de Apoyo a la Investigación Biomédica (UAIB) basing on strategic interest and alignment with other platforms in Andalusia.
8.	Intensifying fund-raising -especially international funds- by the project management department through an individualized support policy aimed at IMIBIC research groups.
9.	Promoting the integration of research and technical personnel through competitive calls.
10.	Promoting the consolidation of emerging research groups and interactions between emerging groups, associated groups and collaborating groups at IMIBIC.

## Abbreviations and Acronyms

- CAIBER:** Consorcio de Apoyo a la Investigación Biomédica en Red (Support Consortium for On-line Biomedical Research)
- CIBER:** Centros de Investigación Biomédica en Red (Biomedical Research Networking Center)
- CEIC:** Consejería de Economía, Innovación y Ciencia (Andalusian Regional Government - Department of Economy, Innovation and Science)
- CNIC:** Centro Nacional de Investigaciones Cardiovasculares (National Centre for Cardiovascular Research)
- CS:** Consejería de Salud (Andalusian Regional Government - Department of Health)
- ER:** Emerging Researcher
- IF:** Impact Factor, according to Journal Citation Reports
- FIBICO:** Fundación para la Investigación Biomédica en Córdoba (Foundation for Biomedical Research in Cordoba)
- FHRS-C:** Fundación Hospital Reina Sofía Cajasur (Reina Sofía Hospital-Cajasur Foundation)
- FIPSE:** Fundación para la Investigación y Prevención del SIDA en España (Foundation for AIDS Research and Prevention in Spain)
- HR:** Head Researcher
- HURS:** Hospital Universitario Reina Sofía (Reina Sofía University Hospital, Cordoba)
- IMIBIC:** Instituto Maimónides de Investigación Biomédica de Córdoba (Maimonides Institute for Biomedical Research, Cordoba)
- ISCIII:** Instituto de Salud Carlos III (Carlos III Health Institute) (Head of Carlos III Health Institute, Madrid)
- JCR:** Journal Citation Reports
- PAIDI:** Plan Andaluz de Investigación, Desarrollo e Innovación (Andalusian Plan for Research, Development and Innovation)
- RETICS:** Redes Temáticas de Investigación Cooperativa (Thematic Networks for Research Cooperation)
- UCAIB:** Unidad Central de Apoyo a la Investigación Biomédica (Central Support Unit for Biomedical Research)
- UCO:** Universidad de Córdoba (University of Córdoba)





**IMIBIC**

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JUNTA DE ANDALUCIA



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