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<td>2013</td>
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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.
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:

1. 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.

2. 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.

3. 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.

4. IMIBIC’s Scientific Director
   - **Mr. Francisco Perez Jimenez.**

5. 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 Sofia 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 Sampere, 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.
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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Researchers</th>
</tr>
</thead>
</table>
| 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 Bárbara Ruz (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) |
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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Researchers</th>
</tr>
</thead>
</table>
| 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. Mª 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 Fíñana (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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-01</td>
<td>Cell Therapy</td>
<td>Dr. 1. Concepción Herrera Arroyo (HR)</td>
</tr>
<tr>
<td>C-02</td>
<td>Invasive Cardiology and Cell Therapy</td>
<td>Dr. José Suárez De Lezo Cruz-Conde (HR)</td>
</tr>
<tr>
<td>C-03</td>
<td>Cell Biology in Hematology Hypercoagulability</td>
<td>Dr. Joaquin Sánchez García (HR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dr. Francisco Velasco Gimena (CO- HR)</td>
</tr>
<tr>
<td>C-04</td>
<td>Pathophysiology of the vitamin D endocrine system. Biotechnology and aging</td>
<td>Dr. José Manuel Quesada Gómez (HR)</td>
</tr>
<tr>
<td>C-05</td>
<td>Translational Research in Transplant Surgery of Solid Organs</td>
<td>Dr. Javier Briceño Delgado (HR)</td>
</tr>
<tr>
<td>Cas-04</td>
<td>Urology and Sexual Medicine</td>
<td>Dra. Mª José Requena Tapia (AR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dr. Francisco Anglada Curado (AR)</td>
</tr>
</tbody>
</table>
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:

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

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:

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

(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:

<table>
<thead>
<tr>
<th>Name</th>
<th>Academic Qualification</th>
<th>Affiliation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANA BELEN POZO SALAS</td>
<td>Laboratory Advanced Technologist</td>
<td>FIBICO-C</td>
<td>Co-financed by FIBICO and ISCIII</td>
</tr>
<tr>
<td>ANTONIA ARROYO SANCHEZ</td>
<td>Nuclear Medicine Advanced Technologist</td>
<td>FIBICO-C</td>
<td>Co-financed by FIBICO and ISCIII</td>
</tr>
</tbody>
</table>

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.
- 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:

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETICS</td>
<td>156,894.84 €</td>
</tr>
<tr>
<td>Provision of Services</td>
<td>266,157.30 €</td>
</tr>
<tr>
<td>Facilities</td>
<td>72,138.12 €</td>
</tr>
<tr>
<td>Research Projects</td>
<td>2,241,386.92 €</td>
</tr>
<tr>
<td>Personnel Program Financing</td>
<td>291,835.97 €</td>
</tr>
<tr>
<td>Clinical Trials</td>
<td>1,451,420.65 €</td>
</tr>
<tr>
<td>Agreements</td>
<td>66,079.57 €</td>
</tr>
<tr>
<td>Donations</td>
<td>158,200.84 €</td>
</tr>
<tr>
<td>CAIBER</td>
<td>147,676.88 €</td>
</tr>
<tr>
<td>BIOBANK</td>
<td>109,801.44 €</td>
</tr>
<tr>
<td>CIBER</td>
<td>5,347.00 €</td>
</tr>
</tbody>
</table>

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.
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, Proteomics, 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-
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.

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.
Activities of the External Scientific Committee
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).
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 Sofia 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:

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

Other cooperative networks:

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

Other research networks:

<table>
<thead>
<tr>
<th>Name of the Network</th>
<th>Head Scientist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish Society for Rheumatology (REGISPONSER)</td>
<td>Eduardo Collantes Estévez</td>
</tr>
<tr>
<td>Spanish Myelodysplastic Syndrome Registry (RESMD)</td>
<td>Joaquín Sánchez García*</td>
</tr>
<tr>
<td>Observational Immune Tolerance Induction research program (OBSITI)</td>
<td>Francisco Velasco Gimena*</td>
</tr>
</tbody>
</table>

*Members of the same group
CIBERs Programme

Our researchers lead the following CIBERs’ nodes:

<table>
<thead>
<tr>
<th>CIBER</th>
<th>Head Scientist</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIBER on Obesity and Nutrition (CIBERobn)</td>
<td>José López Miranda</td>
</tr>
<tr>
<td>CIBER on Obesity and Nutrition (CIBERobn)</td>
<td>Manuel Tena Sempere</td>
</tr>
<tr>
<td>CIBER on Liver and Digestive Diseases (CIBERehd)</td>
<td>Manuel de la Mata García</td>
</tr>
<tr>
<td>CAIBER Biomedical Research Centers Network Consortium</td>
<td>Joaquín Alanís López</td>
</tr>
</tbody>
</table>

Additionally, our researchers are members of the following CIBERs:

<table>
<thead>
<tr>
<th>CIBER</th>
<th>Collaborating Researcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIBER Obesity and Nutrition (CIBERobn)</td>
<td>Francisco Gracia Navarro</td>
</tr>
<tr>
<td>CIBER Obesity and Nutrition (CIBERobn)</td>
<td>Mª Mar Malagón Poyato</td>
</tr>
</tbody>
</table>

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 Estévez.

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.

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

2. Alterations in Cellular Bioenergetics due to Caloric Restriction and Dietary Antioxidants  
   Research Coordinator: JOSÉ MANUEL VILLALBA MONTORO

3. Redox Alterations and Pathologies of the Mitochondrial Proteome  
   Research Coordinator: JOSÉ ANTONIO BÁRCENA RUIZ (Head of Research of IMIBIC group A-02)

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)

5. Pathobiological Aspects of Allergic Diseases  
   Research Coordinator: FRANCISCO ANTONIO GUERRA PASADAS

6. Clinical and Molecular Basis of Cancer Surgery  
   Research Coordinator: SEBASTIÁN RUFIÁN PEÑA (Researcher of IMIBIC Group C-05).

7. Clinical and Molecular Bases of Digestive and Liver Diseases  
   Research Coordinator: PEDRO ANTONIO LÓPEZ CILLERO (Researcher of IMIBIC Group C-05).

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)

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

10. Nursing Care  
    Research Coordinator: Mª AURORA RODRÍGUEZ BORREGO (Associated Researcher of IMIBIC Group Aas-06)

11. Dermatosis and its Association with Organs and Systems  
    Research Coordinator: JOSÉ CARLOS MORENO GIMÉNEZ

12. Diagnostic Imaging and Radiotherapy  
    Research Coordinator: MARIÁ MARTÍNEZ PAREDES

13. Endocrinology, Metabolism and Diabetes  
    Research Coordinator: PEDRO BENITO LÓPEZ (Head of Research of the associated group Bas-02)

14. Systemic Autoimmune and Chronic Inflammatory Diseases  
    Research Coordinator: ROSARIO LÓPEZ PEDRERA (Head of Research of IBIMIC Group A-07)

15. Pathophysiology of Adipose Tissue: Obesity and Diabetes  
    Research Coordinator: MARIA DEL MAR MALAGÓN POYATO (Head of Research of IBIMIC Group B-06)

16. Genetics and Human Behaviour  
    Research Coordinator: MANUEL RUIZ RUBIO (Head of Research of IMIBIC Group D-03)

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)

18. Inflammation, Cancer and Lung Transplants  
    Research Coordinator: EDUARDO MUÑOZ BLANCO (Head of Research of IMIBIC Group A-05)

19. Immunobiology of NK Cells  
    Research Coordinator: JOSE PEÑA MARTINEZ (Head of Research of IMIBIC Group A-01)
<table>
<thead>
<tr>
<th>No.</th>
<th>Research Area</th>
<th>Research Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Translational Research in Infectious diseases</td>
<td>JULIÁN DE LA TORRE CISNEROS (Head of Research of IMIBIC Group A-04)</td>
</tr>
<tr>
<td>21</td>
<td>Cellular and molecular mechanisms of Inflammation and Endothelial Damage in Renal Failure</td>
<td>PEDRO ALJAMA GARCÍA (Head of Research of IMIBIC Group A-09)</td>
</tr>
<tr>
<td>22</td>
<td>Clinical Microbiology</td>
<td>MANUEL CASAL ROMÁN</td>
</tr>
<tr>
<td>23</td>
<td>Neuroendocrinology of Energy Balance, Puberty and Reproductive Function</td>
<td>MANUEL TENA SEMPERE (Head of Research of IMIBIC Group B-03)</td>
</tr>
<tr>
<td>24</td>
<td>Neuroplasticity and Oxidative Stress</td>
<td>ISAAC TÚNEZ FIÑANA (Head of Research of IMIBIC Group BE-05)</td>
</tr>
<tr>
<td>25</td>
<td>Nutrigenomics, Interaction of Genes with the Environment</td>
<td>JOSÉ LÓPEZ MIRANDA (Head of Research of IMIBIC Group B-02)</td>
</tr>
<tr>
<td>26</td>
<td>Pediatrics or Social Pediatrics. Experimental Medicine</td>
<td>RAMÓN CAÑETE ESTRADA (Associated Researcher of IMIBIC Group Bas-03)</td>
</tr>
<tr>
<td>27</td>
<td>Pediatrics: Research in Specific Areas</td>
<td>JUAN LUIS PEREZ NAVERO (Researcher of Group BE-07)</td>
</tr>
<tr>
<td>28</td>
<td>Diagnostic Procedures, Interventional and Therapeutic Radiology and Rehabilitation</td>
<td>ANTONIO CANO SÁNCHEZ (Researcher of Group BE-04)</td>
</tr>
<tr>
<td>29</td>
<td>Cellular and Molecular Regulation of Hormone Secretion and Cancer</td>
<td>JUSTO PASTOR CASTAÑO FUENTES (Head of Research of IMIBIC Group B-01)</td>
</tr>
<tr>
<td>30</td>
<td>Targeted Therapy in Cancer: Identification of Molecular Mechanisms of Resistance in a Suitable Selection of Patients and a Rational Use of Combined Therapy</td>
<td>ENRIQUE ARANDA AGUILAR (Head of Research of IMIBIC Group A-08)</td>
</tr>
</tbody>
</table>

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
2. Applied Science in Physical Activity and Sports (Exercise and Health)
3. Epidemiology, Public Health and Mental Health
4. Natural History of Cardiac Intervention
5. AIDS Immunology
6. Qualitative Research
7. Research into Sciences of Physical Activity and Sport
8. Occupational Medicine, Environmental Health and Occupational Epidemiology
9. Family and Community Medicine
10. Forensic Medicine
11. Neurochemistry and Neuroendocrinology
12. Cellular and Molecular Pathology of Cancer and Related Diseases
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

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

Training activities in which IMIBIC takes part

<table>
<thead>
<tr>
<th>Type of Activity</th>
<th>Name of the Activity</th>
<th>Duration (hours)</th>
</tr>
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<tbody>
<tr>
<td>CONFERENCE</td>
<td>Training conference on European funding opportunities for R&amp;D actions in the field of health sciences</td>
<td>2</td>
</tr>
<tr>
<td>CONFERENCE</td>
<td>Training conference by the Centro Andaluz de Nanomedicina y Biotecnología (BIONAND)</td>
<td>2</td>
</tr>
<tr>
<td>COURSE</td>
<td>Introduction to the Bayesian inference Theory and applications in Health Sciences</td>
<td>16</td>
</tr>
<tr>
<td>WORKSHOP</td>
<td>European funding opportunities in R&amp;D through 2013 Health and HORIZON 2020 and keys to the preparation of Marie Curie proposals</td>
<td>5</td>
</tr>
<tr>
<td>Date</td>
<td>Lecturer</td>
<td>Institution</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>26/01/2012</td>
<td>Eva Delpón</td>
<td>Dept. of Pharmacology Faculty of Medicine Complutense de Madrid.</td>
</tr>
<tr>
<td>02/02/2012</td>
<td>Manuel Jesús Muñoz Ruiz</td>
<td>Pablo de Olavide, Seville.</td>
</tr>
<tr>
<td>09/02/2012</td>
<td>Placido Navas</td>
<td>Andalusian Center of Development Biology (CABD), Pablo Olavide University,</td>
</tr>
<tr>
<td>16/02/2012</td>
<td>Mercedes Robledo</td>
<td>Hereditary Endocrine Cancer Group of the National Oncological Research Center (CNIO)</td>
</tr>
<tr>
<td>23/02/2012</td>
<td>Ana Aranda</td>
<td>Spanish Council for Scientific Research (CSIC)</td>
</tr>
<tr>
<td>01/03/2012</td>
<td>Emilio Alba</td>
<td>University of Malaga Virgen de la Victoria Hospital</td>
</tr>
<tr>
<td>08/03/2012</td>
<td>Mª José Serrano</td>
<td>Biodynamics of Circulating Tumor Cells of the GENYO Center</td>
</tr>
<tr>
<td>15/03/2012</td>
<td>Jordi Gómez</td>
<td>Institute of Parasitology and Biomedicine “López Neyra”</td>
</tr>
<tr>
<td>29/03/2012</td>
<td>Edgardo Carosella</td>
<td>Hospital Saint-Louis (Paris).</td>
</tr>
<tr>
<td>26/04/2012</td>
<td>Augusto Villanueva</td>
<td>Clinic Hospital of Barcelona</td>
</tr>
<tr>
<td>03/05/2012</td>
<td>Jose Antonio Muñoz</td>
<td>Clinical University Hospital Granada</td>
</tr>
<tr>
<td>10/05/2012</td>
<td>Pedro A. Lazo</td>
<td>Institute of Molecular and Cellular of Cancer, CSIC-University of Salamanca</td>
</tr>
<tr>
<td>17/05/2012</td>
<td>Rocío Sancho</td>
<td>Cancer Research UK. London Research Institute.</td>
</tr>
<tr>
<td>18/05/2012</td>
<td>Antonio Vidal</td>
<td>Metabolic Research Laboratory, University of Cambridge</td>
</tr>
<tr>
<td>07/06/2012</td>
<td>Carlos Cervera</td>
<td>Division of Infectious Diseases. Clinic Hospital of Barcelona</td>
</tr>
<tr>
<td>18/06/2012</td>
<td>Nicolás Olea</td>
<td>Department of Radiology, Radiotherapy and Oncology, University of Granada</td>
</tr>
<tr>
<td>23/10/2012</td>
<td>Miguel López</td>
<td>NeurObesity Group; Department of Physiology; Faculty of Medicine-CIMUS; Santiago de Compostela University</td>
</tr>
<tr>
<td>26/10/2012</td>
<td>Marcus Flather</td>
<td>Cardiology and Medical School. Norfolk and Norwich University Hospital and University of East Anglia</td>
</tr>
<tr>
<td>15/11/2012</td>
<td>Luis Carlos Silva Aycaguer</td>
<td>Universidad de Ciencias Médicas de La Habana</td>
</tr>
<tr>
<td>22/11/2012</td>
<td>Toni Andreu</td>
<td>Carlos III Health Institute</td>
</tr>
<tr>
<td>20/12/2012</td>
<td>Rubén Nogueiras Pozo</td>
<td>Santiago de Compostela University</td>
</tr>
</tbody>
</table>
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 Sofia 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.  
  **Maria 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.  
  **Maria 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.**

**12:30-14:00. Genomics applied to type 2 diabetes or how to surf a tsunami**

- **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

- **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 Rivín del Campo

17:15-17:45. Poster session.


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.
Mª del Carmen Parías 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
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
### 6.3. Results of training activities

#### 6.3.1. Doctoral Theses

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

<table>
<thead>
<tr>
<th>PhD student</th>
<th>Title of Theses</th>
<th>Director of the Theses</th>
</tr>
</thead>
<tbody>
<tr>
<td>María Luisa Agüera Morales</td>
<td>Influence of time of transplantation and early renal graft function on middle-and long-term results of renal transplan</td>
<td>Pedro Aljama García</td>
</tr>
<tr>
<td>Antonio María Delgado Rojano</td>
<td>Analytical platforms in metabolomics and applications on the study of resistance-sensitivity to herbicides</td>
<td>María Dolores Luque de Castro</td>
</tr>
<tr>
<td>Beatriz Álvarez Sánchez</td>
<td>New analytical platforms in metabolomics</td>
<td>María Dolores Luque de Castro</td>
</tr>
<tr>
<td>Beatriz Santiago Agredano</td>
<td>Evaluation of recent histological and prognostic factors in renal carcinoma</td>
<td>Antonio López Beltran</td>
</tr>
<tr>
<td>Juan Criado García</td>
<td>R3S3Q Polymorphism of VII factor and cardiovascular risk in patients with family hypercholesterolemia</td>
<td>José Lopez Miranda</td>
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<tr>
<td>Nieves Delgado Casado</td>
<td>Influence of Mediterranean nutrition supplemented with coenzyme 10 on lipid parameters, oxidative stress and age-associated endothelial dysfunction</td>
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<td>Antonia Díaz Moreno</td>
<td>Photoperiods and oxidative stress: Function of endogenous melatonin and leptin</td>
<td>Isaac Túnez Fiñana</td>
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<td>Enrique Martín Riobóó</td>
<td>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</td>
<td>Luis Angel Pérula De Torres</td>
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<td>Fatima Guerrero Pavón</td>
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<td>María Carmen Fernández Marin</td>
<td>Study on oxidative stress and endothelial function in patients with obstructive sleep apnea</td>
<td>José Lopez Miranda</td>
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<td>David García Galiano</td>
<td>Neuropeptide Y-Ergic systems controlling the reproductive function: Analysis of the role of Kisspeptins Y and Nesfatin-1</td>
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<td>Ana Isabel Jiménez Morales</td>
<td>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</td>
<td>Francisco Pérez Jiménez</td>
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<td>Julia Carrasco Valiente</td>
<td>Protective role of CoQ10 in renal damage associated with urinary tract calculi</td>
<td>Javier Padillo Ruiz</td>
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<td>Mª de las Nieves López De Lerma-Extremera</td>
<td>Analytical and antioxidant characterization of Pedro Ximenez and Tempranillo grapes during their raisining Enological potential of dried Tempranillo grapes</td>
<td>José Peinado Peinado</td>
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<td>Mª Isabel Martínez Macías</td>
<td>Identification of proteins involved in an active DNA demethylation pathway in Arabidopsis thaliana</td>
<td>Teresa Roldán Arjona</td>
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<td>Mara Isabel Orozco Solano</td>
<td>Development of global and specific analytical platforms in vegetal and clinical metabolomics and in nutrimetabolomics</td>
<td>María Dolores Luque de Castro</td>
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<td>Study on the prevalence of left ventricular hypertrophy, AF and other cardiovascular alterations in patients with HBP in Andalusia</td>
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<td>Maria Eugenia Meneses Álvarecs</td>
<td>Comparative effect of a diet rich in monounsaturated fat on adipose tissue dysfunction in patients with metabolic syndrome in postpandrial state</td>
<td>José Lopez Miranda</td>
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6.3.2. Profile of Students Enrolled in our Master Program

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<th>Master in</th>
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<td>PAP = 2</td>
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<td></td>
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<td>PE = 4</td>
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<td>NUTRITION AND METABOLISM</td>
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<td>PAP= 1</td>
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<td></td>
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<td>R = 17</td>
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<td></td>
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<td>O= 12</td>
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</table>

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 provided below:

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<th>International Stay</th>
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<td></td>
<td>Other</td>
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<td>IMIBIC program</td>
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<tr>
<td>Researchers in training</td>
<td>Public call</td>
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<td>Total Duration: 0.5 months</td>
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<tr>
<td></td>
<td>Other</td>
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<td>Postdoc researchers</td>
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*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.
Results of the IMIBIC’s Scientific Work. Areas and Groups
Immunology, Inflammation, Oncology and Infectious Diseases

Coordinator: Rafael Solana Lara

A-01 T and NK Cell Immunosenescence. Antiviral immune response
A-02 Oxidative and nitrosative stress in acute and chronic liver disease
A-04 Infectious Diseases
A-05 Inflammation and Cancer
A-07 Systemic Autoimmune and Chronic Inflammatory Diseases of Musculoskeletal System and Connective Tissue
A-08 New Cancer Therapies
A-09 Nephrology. Cell Damage in Chronic Inflammation
Aas-01 Lung Transplants. Thoracic Neoplasms
Aas-06 Comprehensive Nursing Care. Multidisciplinary Perspective
Aas-07 Pneumology
T and NK cell Immunosenescence. Antiviral Immune Response

Head Researcher: Rafael Solana Lara. 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

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</table>

(*) 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


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: Innogenetics
File number: CCB.00016

Project Name: Effect of age and CMV infection on the multifunctionality of NK cell, invariant NKT cells, NK-T-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.00009
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, α-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 (soravaptan), 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

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

### Publications


Research Projects

Project Name: Redoxins, mitochondrial and cell regulation by posttranslational thiol modification of the proteome. Physiological implications. (José Antonio Bárzcu Ruz) Funding body: MICINN. File number: BFU2009-68004

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: P11/02967

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 thiod proteome by redoxins: mechanisms and implications in iron metabolism, mitochondrial function and apoptosis (José Antonio Bárzcu Ruz) Funding body: Spanish Ministry of Economy and Competitiveness. File number: BU2012-32056 2013 Anniversary

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

Project Name: Functional validation of SNP rs6105269 in Crohn disease (María Del Valle García Sánchez) Funding body: Carlos III Health Institute. File Number: P12/2091 2013 Anniversary

Collaboration Agreements

Project Name: Collaboration Agreement between ciberhefd and institution (Manuel de la Mata García) Funding body: Spanish Ministry of Science and Innovation. Funding body: American Heart Association. 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 (Maria del Valle Garcia 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

0009/10: 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

0015/12: A multicenter, randomized, placebo-controlled, double-blind phase IV study to assess the efficacy of sorafenib in patients with advanced liver cell cancer with radiological progression (José Luis Montero Alvarez)
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 tenovir in the prophylaxis of hematological anti-HBc positive and AgHBs-negative patients on treatment with rituximab. PREBLIN study
PI: Enrique Fraga Rivas

1312: Study of co-morbidity and clinical expression of immunologically-mediated inflammatory diseases (psoriasis, Spondyloarthropathy 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

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

2017: Use of Everolimus in liver transplantation.
PI: Manuel de la Mata García
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

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

### Publications


Project Name: A prospective, randomized, comparative trial to assess the effectiveness and safety of Levofoxacyn versus Isoniazid in the treatment of latent tuberculous infection of liver transplant. (Julio Carlos de la Torre Cisneros) Funding body: Spanish Ministry of Health, Social Welfare. Networked biomedical research support consortium.

Project Name: Study of HIV-coinfected patients to assess HIV transmission rates and to determine the factors associated with the use of

Research Projects
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 Torres 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 (Julian de la Torre Cisneros)
Funding body: Carlos III Health Institute. Health Research Fund (Extension)
File Number: PI01/0336

Project Name: Predictive value of immediate vhc viral kinetics on the sustained viral response in patients co-infected with the vhf/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: PII1/02091

Project Name: A translational study to assess the clinical usefulness of the pre-transplant determination of ifnγ secreted by cells t CD8+cmv specfied 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 Rivera 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 Lenfoxovirax versus Isoniazid in the treatment of latent tuberculosis infection of liver transplant patients co-infected with hepatitis B virus (genotypes 1 and 2) co-infected with HIV, non-respondent to previous therapy with standard interferon doses.
PI: Antonio Rivero Román

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

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 Mª 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 peripherical for peripheral (or lumb) 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 ’0 4) co-infected with HIV, non-respondent 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 azatavir/rainonv + 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.
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 Kindelan

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
PI: Antonio Rivero Román

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

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

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

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 followed by an open period.
PI: Antonio Rivero Román

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

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

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

PI: Clara Natera Kindelán

0298/11: An open, randomized, phase 3B, 48-week duration, comparative study of antiviral effectiveness and safety of ATV/RTV + 3TC versus ATV/RTV + TDF/FTC in naive HIV-1 patients.
PI: Antonio Rivero Román

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

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

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

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
**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.

**Inflammation and Cancer**

*Head Researcher: Eduardo Muñoz Blanco. fimuble@uco.es*

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


Research Projects

Project Name: A study of the dyrk2 regulation mechanisms in response to hiposis and oncogenic stress (Eduardo Munoz Blanco) Funding body: Regional Ministry of Innovation, Science and Business File Number: 0650/2010

Project Name: A study of the dyrk2 lynesage 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: SAF2010-17122

Project Name: A study of factor (HIF)-1 alpha regulation through endocannabinoids. Implications in neuroprotection (Eduardo Munoz Blanco) Funding body: MICINN File Number: SAF2010-19282

Project Name: Pre-clinical development of new CBD derivatives for the treatment of neuropathic diseases (Eduardo Munoz Blanco)
Collaboration Agreements

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

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

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
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

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

Publications


Barbajroja N, Lopez-Pedrera C, Garrido-Sanchez L, Mayas MD, Oliva-Olivera W, Bernal-Lopez MR, El Bekay R, Tinahones FJ. Progression from High
Insulin Resistance to Type 2 Diabetes Does Not Entail Additional Visceral Adipose Tissue Inflammation. Plos One. 2012; 7(10):e48155-.


IF: 1.838


IF: 3.553


IF: 4.476


IF: 3.685

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 Pedreira)
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 Pedreira)
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 Guip) Funding body: Andalusian Health Department
File Number: PI-0049-2011

Project Name: A study of molecular targets involved in the inflammation and apoposition 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

Project Name: Mechanisms of atherosclerosis and cardiovascular disease (Rosario Lopez Pedreira)
Funding body: Carlos III Health Institute
File Number: P12/01511

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

Project Name: A study of new molecular targets involved in the inflammation and apoposition of fibrous and bone tissue in ankylosing spondylitis. Alternative therapies (Alejandro Escudero Contreras)
Funding body: Roche Farma, S.A.
File Number: CC8.0035

Project Name: A study of molecular targets involved in the inflammation and apoposition of fibrous and bone tissue in ankylosing spondylitis. Alternative therapies (Alejandro Escudero Contreras)
Funding body: Roche Farma, S.A.
File Number: CC8.0035

Clinical Trials

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

1681. 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

0284/09: Assessing response to etoricoxib in patients with ankylosing spondylitis and inadequate response to > 2 AINEs. Pi: Eduardo Collantes Estevez

0201/08: 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

0166/09: An open, randomized study to assess the effectiveness and safety of denosumab and Actonel® in postmenopausal women after transition to weekly or daily treatment with alendronate. Pi: Alejandro Escudero Contreras

0178/09: 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

Collaboration Agreements

Project Name: UCB Pharma-Dr. Collantes- Diagnosis and treatment of rheumatoid arthritis (Eduardo Collantes Estevez)
Funding body: UCB Pharma- SA.
File Number: CC8.0019

Project Name: Agreement between the Clinical Management Unit of Rheumatology and UCB Pharma (Eduardo Collantes Estevez)
Funding body: UCB Pharma- SA.
File Number: CC8.0033

Project Name: A study of new molecular targets involved in the inflammation and apoposition of fibrous and bone tissue in ankylosing spondylitis. Alternative therapies (Eduardo Collantes Estevez)
Funding body: Roche Farma, S.A.
File Number: CC8.0035

Provision of Services to third parties

Project Name: Services provided to the ESPERANZA program. (Eduardo Collantes Estévez)
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 Estévez)
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 Estévez)
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 Estévez)
Funding body: Spanish Ministry of Industry, Energy and Tourism
File Number: AVANZA.0001
2013 Annuity
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

0199/10: A multicenter, pilot, randomized, parallel-group, placebo-controlled study to assess the effectiveness and safety of three different Adalimumab dosing regimes 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 spondyloarthritis
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 spondyloarthritis
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 NSAID 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 (REMIYACED®) in patients with active rheumatoid arthritis not adequately responding to Etanercept (ENBREL®)
Pi: Eduardo Collantes Estévez

0246/10: Diagnosis-escalation, single-blind, phase III/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 Reumatology
Pi: Maria Angeles Aguirre Zamorano

1811: SCORE: Follow-up and control in reumatology-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 Reumatology
Pi: Eduardo Collantes Estévez

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

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

New Cancer Therapies

Head Researcher: Enrique Aranda Aguilar. earandaa@seom.org
Cooperative Research Thematic Network on Cancer (RETICC)
Co-Head Researcher: Antonio Rodriguez Ariza
Nicolás Monardes Contract
Keywords
Colon Cancer, Breast Cancer, Polymorphisms, Gene Expression, Pharmacogenomics, Predictive Models, Angiogenesis, Angiotensins, anti-Her-2 therapies, anti-EGFR Therapy, Clinical Trial, Nitric Oxide, Nitrosoative Stress, S-nitrosylation, Proteomics, Genomics.

Groups Members

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

Publications


IF: 6.425


IF: 22.589


Research Projects

Project Name: A study of genetic polymorphisms in the renin angiotensin and the 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 homeo-stasis and protein nitrosylation during response to targeted therapy in colon and breast cancer: therapeutic implications. (Antonio Rodriguez Ariza) Funding body: Carlos III Health Institute File Number: 10/00428

Project Name: Genetic polymorphisms in vegfr-1 and renin angiotensin systems as po-tential 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 ni-trosative stress and protein nitrosylation in the response to targeted therapies in colon and breast cancer (Antonio Rodriguez Ariza) Funding body: Regional Ministry of Health and Social Welfare File Number: 02/30/2009

Project Name: Detection system of volatile com-pounds for early diagnosis of lung and colon cancer (Antonio Rodriguez Ariza) Funding body: MINECO Funding body: CCB.030P0

Project Name: Analysis of polymorphisms relat-ed with hypertension as a predictor of response to antiangiogenic treatment in cancer (Juan Rafael De La Haba Rodriguez) Funding body: Carlos III Health Institute File Number: P12/02017 2013 Annuality
study to evaluate individualized treatments by assessing BRCA1 in patients with advanced small cell lung cancer. BREC Study (BRCA1 expression custom studies).

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 Rafael de la Haba Rodriguez

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 Rafael de la Haba Rodriguez

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 FOLFIRI 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

0098/07: A phase II study to determine the effectiveness of sunsitib 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 paclitaxel 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: Enrique Aranda Aguilar

0198/05: An open, 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 of HER-2/neu

PI: Juan Rafael de la Haba Rodriguez

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

PI: Juan Rafael de la Haba Rodriguez

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

PI: Juan Rafael de la Haba Rodriguez

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 Rafael de la Haba Rodriguez

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

PI: Juan Rafael de la Haba Rodriguez

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

PI: Juan Rafael de la Haba Rodriguez

0185/07: An open, multicenter, randomized, parallel-group, phase III trial to compare the effectiveness and tolerability of administering Fulvestrant (FASLODEX®) for three years in combination with Anastrozol (ARIMIDEX®) for five years versus Anastrozol for five years

PI: Juan Rafael de la Haba Rodriguez

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 capecitabin or 5-fluorouracil basing on TS-3 UTR and ERCCI - T118 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 Rafael de la Haba Rodriguez

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 5AR240550 (BBI- 201), a PARP-1 inhibitor, in combination with paclitaxel weekly administered.

PI: Juan Rafael de la Haba Rodriguez

0013/09: An open, randomized, phase III study of neratinib versus lapatinib plus capcitabin in the treatment of locally advanced or metastatic erbb2-positive breast cancer

PI: Juan Rafael de la Haba Rodriguez

0048/08: A randomized, phase II study of albendazole as adjuvant chemotherapy versus panitumumab as 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 (SCCOT Register)

PI: Isidoro Barneto Aranda

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

PI: Enrique Aranda Aguilar

0025/09: 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

0039/08: A grade II study of the cardiac safety of apegitaxorotaxol (Caelx®) in patients with NED breast cancer previously treated with anthracycline and trastuzumab administered concomitantly or sequentially to a regular antracycline-based chemotherapy

PI: Enrique Aranda Aguilar

1134: Lifestyle and breast cancer risk in Spain

PI: Juan Rafael de la Haba Rodriguez

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 of HER-2/neu

PI: Juan Rafael de la Haba Rodriguez

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PI: Juan Rafael de la Haba Rodriguez

0013/09: An open, randomized, phase III study of neratinib versus lapatinib plus capcitabin in the treatment of locally advanced or metastatic erbB2-positive breast cancer

PI: Juan Rafael de la Haba Rodriguez

0048/09: A randomized, phase II study of cetuximab-bevacizumab-external radiotherapy versus capacitabin-external radiotherapy as preoperative treatment in patients with resectable locally advanced rectal cancer

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PI: Juan Rafael de la Haba Rodriguez

0013/09: An open, randomized, phase III study of neratinib versus lapatinib plus capcitabin in the treatment of locally advanced or metastatic erbB2-positive breast cancer

PI: Juan Rafael de la Haba Rodriguez
0138/11: An open, multicenter, randomized study to assess the effectiveness and safety of bevaxizumab in combination with letrozol alone in postmenopausal women with locally recurrent or metastatic breast cancer with indication of hormone therapy
   PI: Juan Rafael 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 irinapir (BSI-201) and docetaxel-carboplatin as neoadjuvant treatment of patients with early stage and triple-negative phenotype breast cancer
   PI: Juan Rafael 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 Rafael de la Haba Rodríguez

0243/10: A randomized, phase Ib assay to assess the effectiveness of gemcitabin-erlotinib-capecitab in patients with metastatic pancreatic cancer. GECT
   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 metastatic colorectal carcinoma
   PI: Enrique Aranda Aguilar

   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 Rafitrexed and the profile of patients treated with Rafitrexed alone or in combination with oxaplatin (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-02299804 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-3. A randomized, phase II study of afatinib monotherapy or in combination with vinorelbine versus the researcher’s treatment of choice in HER2-positive breast cancer patients with progressive cerebral metastasis
   PI: Juan Rafael de la Haba Rodríguez

0104/12: An open, multicenter, expanded-access study of postmenopausal women with RE+ breast cancer with progression after hormone treatment
   PI: Juan Rafael de la Haba Rodríguez

0073/12: A randomized, phase III clinical assay to assess the effectiveness of FOLFOX + bevaxizumab 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 microarray 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

0177/12: A randomized, double-blind, placebo-controlled, phase II 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™) hybridisation 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

0229/12: A multicenter, single-arm study of trastuzumab emtansine (TDM1) in patients with metastasis 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 IIb study of regorafenib in patients with metastatic colorectal cancer with progression to conventional treatments
   PI: Enrique Aranda Aguilar
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

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

Publications


Aljama PORD Work and Initiative Group (“Optimising Results in Dialysis”). Nephrology. 2.2.1. 2006

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: Carbamyliated 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: PI11/01536

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

Project Name: Effect of the depurate efficacy of different types of dialysis on endothelial inflammation and damage (Alejandro Martin Malo).
Funding Body: Carlos III Health Institute
File Number: 10/00860

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: PO8-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: P11/01489

2013 Annuty

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 Santamaría Olmo).
Funding body: Carlos III Health Institute
File Number: P11/01866

2013 Annuty

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 Martin 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 advagraf-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

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: Sagrairo Sonano Cabrera

0209/11: Effect of Paricalcitol on albuminuria, inflammation and fibrosis in patients with chronic proteinuric renal disease. A randomized controlled trial.
PI: Sagrairo Sonano Cabrera
1855: A multicenter, prospective, observational study to analyze progression factors in chronic renal disease in diabetic patients vs non-diabetic patients
PI: Rafaél Santamaría Olmo

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

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 tracrolimus
PI: Alberto Rodríguez Benot

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
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

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(*) 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
Pt: Francisco Santos Luna

0013/08: Post-marketing observational monitoring programme of Ambrisentan. VOLT study.
Pt: Francisco Santos Luna

4: Pulmonary hypertension-associated risk factors (PHI study)
Pt: 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)
Pt: José Manuel Vaquero Barrios

1641: Perception of renal dysfunction perception in maintenance lung transplant patients
Pt: Francisco Santos Luna
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

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

Publications


Research Projects

Project Name: Assessing the specific competence 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 (Mª 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 (Mª 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
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.

IF: 0.936


IF: 3.157


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**Groups Members**

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(*)AR: Associated Researcher R: Researcher;

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**Publications**


IF: 0.936


IF: 3.157


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**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

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**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 Fundation

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 Fundation
### Nutrition, Metabolism and Neuroendocrinology

Coordinator: Mª del Mar Malagón Poyato

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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 (satt1-5, GHRH-R, GHS-R, Kiss1r) and signalling pathways involved in the regulation of this cell type, as well as other endocrine cell types (e.g., 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 (e.g., pituitary tumours, breast cancer, diabetes, obesity), with the ultimate aim of contributing to the future design of innovative therapeutic strategies.
Keywords

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

Publications


Annunziata M, Luque RM, Duran-Prado M, Baragli A, Grande C, Volante M, Gañete MD, Delletto F,


Research Projects

Project Name: Traslational 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, cortistatin and ghrelin in the pathological interaction between obesity and breast cancer (Justo Pastor Castaño Fuentes)
Funding body: Regional Ministry 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
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 Truncated sst5md4/5 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
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.

Nutrigenomics. Metabolic Syndrome

Head Researcher: José López Miranda. 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
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terol in patients with heterozygous familial hypercholesterolemia
PI: José López Miranda

1788: Study of masked hypertension
PI: Francisco Fuentes Jiménez

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

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

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

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

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

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

PI: Francisco Fuentes Jiménez

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

2053: Xala-Xarelto ® for initial long-term anticoagulation in venous thromboembolism (VTE)
PI: Mª Angeles Blanco Molina
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, neuromedin, 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

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## Publications


IF: 3.564


IF: 4.746


IF: 2.664


IF: 4.746


IF: 6.31


IF: 4.092


IF: 4.459

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

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: POB-CVI-03788

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

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

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


Project Name: Epipuberty-metabolic control of puberty: role of epigenetic regulatory mechanisms (Manuel Tena Sempere) Funding body: European Commission

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

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

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

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### Publications


2012 IMIBIC ANNUAL REPORT

104
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


**Research Projects**

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

- **Project Name:** Characterization of new markers regulating adipose tissue function (Mª del Mar Malagón Poyato)
  - Funding body: MICINN
  - File Number: BFU2010-17116

- **Project Name:** High-performance proteomic approaches to identify markers of adipose tissue obesity. Adipocyte phosphoproteome disorders resulting from insulin resistance (Mª del Mar Malagón Poyato)
  - Funding body: Regional Ministry of Innovation, Science and Business
  - File Number: P10-CTS-6606
Epidemiological Research in Primary Care

Head Researcher: Luis Angel Pérula de Torres. langel.perula.sspa@juntadeandalucia.es
Research Network on preventive actions and health promotion in primary care (RedIAPP) PAIDI Group CTS-452

Scientific Activity


Keywords

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

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

Publications


Jiménez-De Gracia L, Ruiz-Moral R, Gavilán-Moral E, Hueso-Montoro C, Galvez DCC, Alba-Dios MA. Opinions of Family Doctor son 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


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

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: 010/2008

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 Pérola De Torres)
Funding body: Progress and Health Foundation
File Number: PI-0177-2011
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, Nocth, 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, HPTH2º, vascular calcification, renal failure, VDR, CaR. Mesenchymal stem cells, Wnt / beta-catenin.

Groups Members

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

Publications


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


IF: 0.235

IF: 6.606

IF: 1.00

IF: 6.606

IF: 1.00

Research Projects

Project Name: Role of angiotensin II (AII) and system PDGF / PDGFR in vascular calcification associated with renal failure (Yolanda Almada 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 wat / beta-catenin and osteogenesis (Mariano Rodriguez 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 Rodriguez 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: P11/00038

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 Rodriguez Portillo)
Funding body: Carlos III Health Institute
File Number: P11/02055

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

Project Name: In vivo and in vitro studies of oxidative 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: CCBUCC00008

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: CCBUCC00001

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
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 transactional 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, β-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

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

Publications


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 vilgliaptin 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
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 with 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...
Publications

IF: 3.423

IF: 8.087

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

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

Miembro del grupo

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

Clinical Analysis

Associated Researcher: Cristóbal Aguilera Gámiz. Cristobal.aguilera.sspa@juntadeandalucia.es
Others Researchers: Fernando Rodríguez Cantalejo, Javier Caballero Villarraso
Publications


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


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Groups Members

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Scientific Activity

Our group studies the effect of different antioxidant agents, as well as transcranial magnetic stimulation on neuroplasticity (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.

Oxidative Stress and Nutrition
Emerging Researcher: Isaac Túnez Fiñana. fm2tuflii@uco.es
PAIDI Group CTS-624
Groups Members

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(*) ER: Emerging Researcher; R: Researcher; TR: Trainee Researcher

Publications


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

0312/09: A multicenter, randomized, double-blind, parallel-group, placebo-controlled study to evaluate the efficacy and safety of pegylated interferon beta-1a (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 BG00012 in patients with relapsing-remitting multiple sclerosis
PI: Fernando Sánchez López

0056/10: A multicenter, double-blind, randomized, parallel-group, active-controlled, monotherapy study to determine the effectiveness an safety of dalcizumab obtained through a high performance process (DAC-HYP) versus Avonex
PI: Fernando Sanchez 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 Sanchez López

0329/10: A multicenter, double-blind, placebo-controlled, parallel-group study to assess the effectiveness and safety of Teflumitifor in patients with recurrent multiple sclerosis on treatment with interferon-beta
PI: Fernando Sanchez 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 Sanchez López

1782: Study of quality of life in patients with spas...
ticity due to multiple sclerosis. CANDLE study.
PI: Fernando Sánchez López

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

0145/11: A multicenter, extension, dose-blind frequency study to determine the safety and efficacy of long-term pegylated interferon beta-1a (BIB017) therapy in patients with relapsing multiple sclerosis
PI: Fernando Sánchez López

0108/11: A long-term, prospective, observational study of patients with multiple sclerosis who participated in clinical trials with cladribine
PI: Fernando Sánchez López

1989: Long-term effectiveness of Copaxone in regular clinical practice. Observational study (XPERIENCIA-5)
PI: Eduardo Agüera Morales

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

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
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 neuropsychiatrics, and particular, the inborn errors of metabolism.

Keywords

Obesity, metabolic syndrome, arteriosclerosis, inflammation, oxidative stress, gene expression, proteomics, nutrigenetics, nutrigenomics.
**Groups Members**

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(*)ER: Emerging Researcher; R: Researcher;

**Publications**


Bernaola G, Corzo J, Dominguez-Ortega J, Lu-


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, co-peptin and nt-1 proendothelin heart failure after cardiopulmonary bypass surgery in children with congenital heart disease (Maria Mercedes Gil Campos)
Funding body: Puleva Biotech
File Number: Puleva Biotech

Project Name: Functional assessment of two 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-0480-2012 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.
Pl: María José Arroyo Marín

0010/10: Efficacy and safety of levoisimendan in critically ill children with severe acute heart failure
Pl: María Esther Ulloa Santamaría
Regenerative Cell Therapy: Organ Transplants

Coordinator: Inmaculada Concepción Herrera Arroyo

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<td>Cas-04</td>
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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.
**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


**Research Projects**

Project Name: A comparative study of myocardial regeneration capacity of bone marrow mononuclear cells (MNCS-мо), versus mesenchymal cells from bone marrow (MSCS-мо) and adipose tissue (MSCS-т) in an in vivo model of dilated cardiomyopathy (Sonia Nogueras Martin)

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

**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, multcenter, 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

**Groups Members**

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

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(*) HR: Head Researcher; R: Researcher

Publications


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 drugeluting stents in bifurcation lesions: A prospective randomized study (Manuel Pan Alvarez-Osorio)
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 Alvarez-Osorio)
Funding body: Carlos III Health Institute
File Number: P11/00440 2013 Annuity

Project Name: Revascularization and Myocardial regeneration in Patients with Chronic Coronary Occlusion and Ventricular Dysfunction (Manuel Pan Alvarez-Osorio)
Funding body: Regional Ministry of Health and Social Welfare
File Number: PI-0315-2012 2013 Annuity

Clinical trials

0287/09. 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
0170/09. 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

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-Osorio

1756: An observational register of stable patients undergoing a scheduled electrical (or pharmacological) cardioversion in Spain and 12-month evolution. CARDIOVERSE Study
PI: José Mª Segura Saint-Gerons
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 (G0, 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

**Groups Members**

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(*) HR: Head Researcher; CO-HR: CO-Head Researcher R: Researcher, CR: Collaborator Researcher; TR: Trainee Researcher

(I) PAIDI Group CTS 620

**Publications**


**Research Projects**

Project Name: Study of the Th17 cells in the pathogenesis of graft versus host disease (GVHD) after allologeneic hematopoietic stem cell transplantation (Joaquin Sánchez García). Funding body: Regional Ministry of Innovation, Science and Business

Project Name: Analysis of the cellular and molecular mechanisms regulating the effect of fluorastatin and new antioxidant drugs in the prevention of thrombosis and syndrome associated atherosclerosis (Francisco Velasco Gimena). Funding body: Regional Ministry of Innovation, Science and Business

**Clinical trials**

0167/09: A multicenter, randomized, double-blind, phase III study of Revlimid (lenalidomide) versus placebo in patients with low-risk myelodysplastic syndrome (low and intermediate-1 IPSS) with impaired 5q-deletion and anemia without transfusion requirements

Project: Joaquín Sánchez García

0290/09: A multicenter, randomized, double-blind, placebo-controlled, phase III study of panobinostat in combination with bortezomib and dexamethasone in patients with relapsed multiple myeloma

Project: Antonio Torres Gómez

0211/08: 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)

Project: Antonio Torres Gómez

0112/10: A multicenter, randomized, open-label, phase II study of Vidaza (Azacitidine) versus supportive therapy in patients with low-risk MDS (low and intermediate-1IPSS) without 5q-deletion and anemia requiring transfusion

Project: Joaquin Sánchez García

0299/10: Maintenance treatment with 5-Azacitidine in patients with acute myelogenous leukemia ineligible for intensive treatment with partial or complete response to induction chemotherapy

Project: Antonio Torres Gómez
0133/10: An open, multicenter, randomized, Phase II / III study to compare the efficacy and safety of lenalidomide (revlimid®) with the investigator's treatment choice in patients who have relapsed or are resistant to diffuse lymphoma
PI: Antonio Torres Gómez

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

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

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

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

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

1790: Study of the correlation between ex vivo response to anticancer drugs and their effectiveness in treating acute myeloid leukemia
PI: Antonio Torres Gómez

PI: Francisco Velasco Gimena
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 (MSCs) of adult adipocytes, osteoblasts, polyphenols, gene expression, proteomics, nutrigenetics, and nutrigenomics.
Publications


Research Projects

Project Name: Effect of ß-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

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

Groups Members

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(*) HR: Head Researcher ; R: Researcher
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

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(*) HR: Head Researcher; R: Researcher; TR: Trainee Researcher

Publications


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

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
2013 Annuity

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

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: Manuél Leva Vallejo

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

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

0239/11: Role of intraoperative intraperitoneal paclitaxel chemotherapy in radical surgical treatment of ovarian-origin peritoneal carcinomatosis: hyperthermia versus normothermia
PI: Sebastián Rufián Peña

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
**Urology and Sexual Medicine**

Associated Researcher: María José Requena Tapia josefa.requena.sspa@juntadeandalucia.es

Another Researcher: Francisco Anglada Curado

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**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.

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**Keywords**

Bladder cancer, renal cancer, renal transplant, erectile dysfunction.
Groups Members

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(*) AR: Associated Researcher; R: Researcher; TR: Trainee Researcher; PDR: Postdoctoral Researcher

Publications


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


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

1658: Epidemiological study estimating the incidence of prostate cancer in Spain 2010.
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
## Integrative Medicine and New Technologies

Coordinator: Rafael Medina Carnicer

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<td>Identification of Antigenic Proteins for the Development of New Vaccines</td>
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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, Hysteresis, Tracking, Points Dominant. 3D-Vision.
Groups Members

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(*) HR: Head Researcher; R: Researcher; TR: Trainee Researcher

Publications


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: Enesa
**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

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Publications

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
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, nutrimetabolomics 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.
Publications


Ruiz-Jiménez J, Parshintsev J, Latinen T, Hartonen K, Petaja T, Kulmala M, Riekola 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: 3.485

Fernández-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


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


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


Rojano-Delgado AM, Cruz-Hipolito H, De Prado R, de Castro MDL, Franco AR. Limited uptake, translocation and enhanced metabolic degradation of glyphosate in Mucuna
IF: 3.351

IF: 1.733

IF: 0.615

IF: 2.823

IF: 1.436

IF: 4.301

Project Name: Development of analytical metabolomic platforms to identify cardiac biomarkers and contribute to the design of individualized diets (Mª Dolores Luque De Castro)
Funding body: MICINN
File number: CTQ2009-07430

Project Name: Development of analytical platforms for the identification of biomarkers of glycated 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 organisms

Project Name: Completing the development of active plant compound extraction methods for their identification and quantification (Mª D. Luque de Castro)
Funding body: Phytoplant Research, S. L.
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 mecosina 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

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<tr>
<td>Parrilla</td>
<td>Doblas</td>
<td>Jara Teresa</td>
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<tr>
<td>Ponferrada</td>
<td>Marín</td>
<td>Mª Isabel</td>
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<tr>
<td>Ramiro</td>
<td>Merina</td>
<td>Ángel</td>
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<tr>
<td>García</td>
<td>Ortiz</td>
<td>Mª Victoria</td>
<td>PDR</td>
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<tr>
<td>Morales</td>
<td>Ruiz</td>
<td>Mª Teresa</td>
<td>PDR</td>
<td>Researcher</td>
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</tbody>
</table>

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

(I) PAIDI Group BIO-301

### Publications


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. (Mª 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 (Mª Teresa Roldán Arjona)

**Funding body:** MICINN

**File number:** BFU2010-18838

**Project Name:** Molecular mechanisms of DNA demethylation and implications in epigenome reprogramming (Mª Teresa Roldán Arjona)

**Funding body:** Regional Ministry of Economy, Innovation, Science and Employment

**File number:** CVI-7576

2013 Annuity
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

<table>
<thead>
<tr>
<th>Surname 1</th>
<th>Surname 2</th>
<th>Name</th>
<th>Category (*)</th>
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</thead>
<tbody>
<tr>
<td>Rodríguez</td>
<td>Ortega</td>
<td>Manuel José</td>
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<td>Gómez</td>
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<tr>
<td>Jiménez</td>
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<td>Irene</td>
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<tr>
<td>Olaya</td>
<td>Abril</td>
<td>Alfonso</td>
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<td>Researcher</td>
</tr>
</tbody>
</table>

(*) ER: Emerging Researcher; TR: Trainee Researcher.

### Publications


### 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: P11/01259
2013 Annuity
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 AGRIC FOOD CHEM
J SCI FOOD AGRIC
SPAN J AGRIC RES
ALLERGOL IMMUNOPATH
J INVEST ALLERGOL CLIN IMMUNOL
J ASTHMA
INT J ANDROL
J ANDROL
EXPERT REV. PROTEOMICS
J PROTEOME RES
J PROTEOMICS
PROTEOMICS
J CHROMATOGR A
BIOCHEM J
J BIOL CHEM
J LIPID RES
NUCLEIC ACIDS RES
FASEB J
BIOCHIM BIOPHYS ACTA-MOL CELL RES
CELL
MOL CELL
ANTIOXID REDOX SIGNAL
FREE RADICAL BIO MED
ONCOCENE
PEPTIDES
J PHYSIOL BIOCHEM.
PHYTOCHEMISTRY
BONE MARROW TRANSPLANT
J BIOMED BIOTECHNOL
CATHETER CARDIOVASC INTERV
ECHOCARDIOGRAPHY-J CARDIOVASC EUROINTERVENTION
J HEART VALVE DIS
REV ESP CARDIOL
NUTR METAB CARBOVASC DIS
EUR J CARDIO-THORAC SURG
J HEART LUNG TRANSPLANT
ANAL QUANT CYTOL HISTOL
J MOL CELL BIOL
MOL CELL ENDOCRINOL
CELL TISSUE BANKING
MECH AGEING DEV
IMMUNOL CELL BIOL
HISTOCHEM CELL BIOL
HISTOPATHOLOGY
TALANTA
TRAC-TRENDS ANAL CHEM
J PHARMA BIOMED ANAL
PHYTOTHER RES
NEW J CHEM
MOLECULES
REV NEUROL
AM J NEURORADIOI
CURR ALZHEIMER RES
J NEURO SCI
J SLEEP RES
MUSCLE NERVE
NEUROL RES
PEDIATR NEUROL
PATTERN ANAL APPL
MACH VIS APPL
IMAGE AND VIS COMPUT
PATTERN RECOGNIT
MULTIMED TOOLS APPL
CRIT CARE MED
INTENSIVE CARE MED
MED INTENSIV
MED ORAL PATOL ORAL CIR BUCAL
AM J DERMATOPATH
ARCH-DERMATOL
J EUR ACADEM DERMATOL VENEREOLOG
DERMATOL SURG
AM J EMERG MED
EMERGIENCIAS
CALCIF TISSUE INT
DIABETES
DIABETES CARE
DIABETES OBES METAB
DIABETOLOGIA
ENDOCRINOLOGY
EUR J ENDOCRINOL
GEN COMP ENDOCR
METAB CLIN EXP
NAT REV ENDOCRINOL
J BIOL REGUL HOMEOST AGENTS
ENDOCRINOLOGY
J NEUROENDOCRINOL
INT J OBES
ENDOCR PATHOL
AM J PHYSIOI-ENDOCRINOL METAB
ATMOS ENVIRON
ENVIRON MICROBIOL REP
ECOTOX ENVIRON SAFE
MOL NUTR FOOD RES
EUR J LIPID SCI TECHNOL
GASTROENTEROL HEPATOL
HEPATOLOGY
INFLAMM BOWEL DIS
J HEPATOL
REV ESP ENFERM DIG
ALIMENT PHARMACOL THER
ANDOM IMAGING
LIVER TRANSPLANT
AGE
J AM GERIATR SOC
J GERONTOLOGIA SCI BIOL SCI MED SCI
AM J HEMATOLOG
BLOOD
BRIT J HAEMATOLOG
HAEMOPHILIA
THROMB RES
BLOOD PURIF
CLIN DEV IMMUNOL
SEMIN IMMUNOL
JAIDS
CLIN INFECT DIS
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

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:

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<tr>
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<td>4</td>
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### Intellectual/Industrial Property Registry

<table>
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<tr>
<th>Reference</th>
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<td>IMIBIC-44</td>
<td>Kir3ds1</td>
<td>National patent</td>
<td>SAS, UCO</td>
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<tr>
<td>IMIBIC-45</td>
<td>Calcitrol</td>
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<td>SAS</td>
</tr>
<tr>
<td>IMIBIC-46</td>
<td>Angiotensina</td>
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<td>SAS</td>
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<tr>
<td>IMIBIC-47</td>
<td>Oleuropein compositions for the healing of injuries and ulcers in elderly and / or patients with diabetes.</td>
<td>National phase patent</td>
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<tr>
<td>IMIBIC-48</td>
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<td>SAS</td>
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<tr>
<td>IMIBIC-49</td>
<td>Padmed</td>
<td>Intellectual Property Registry</td>
<td>SAS and UCO</td>
</tr>
<tr>
<td>IMIBIC-50</td>
<td>Padmed ios</td>
<td>Intellectual Property Registry</td>
<td>SAS and UCO</td>
</tr>
<tr>
<td>IMIBIC-51</td>
<td>Single-port laparoscopy</td>
<td>Pct</td>
<td>SAS</td>
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<tr>
<td>IMIBIC-36</td>
<td>Olive oil phenol compound</td>
<td>Pct</td>
<td>IMIBIC, SAS and UCO</td>
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<tr>
<td>IMIBIC-52</td>
<td>Identification of useful drugs for cardiovascular diseases</td>
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Objectives for the Year 2013
<table>
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<tr>
<td>1.</td>
<td>Developing a platform to provide a quality service aimed at attracting both commercial and non-commercial clinical trial assignments.</td>
</tr>
<tr>
<td>2.</td>
<td>Promoting the transfer of research results to clinical practice and to the socio-economic environment.</td>
</tr>
<tr>
<td>3.</td>
<td>Intensifying IMIBIC’s relationships with national and international research centres and corporations in order to improve cooperation in research.</td>
</tr>
<tr>
<td>4.</td>
<td>Acquiring new equipment and facilities for the new IMIBIC headquarters.</td>
</tr>
<tr>
<td>5.</td>
<td>Promoting initiatives to increase private fund-raising and sponsorship.</td>
</tr>
<tr>
<td>6.</td>
<td>Promoting communication and relationships between the IMIBIC and its researchers to progressively create a sense of belonging to this institution.</td>
</tr>
<tr>
<td>7.</td>
<td>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.</td>
</tr>
<tr>
<td>8.</td>
<td>Intensifying fund-raising -especially international funds- by the project management department through an individualized support policy aimed at IMIBIC research groups.</td>
</tr>
<tr>
<td>9.</td>
<td>Promoting the integration of research and technical personnel through competitive calls.</td>
</tr>
<tr>
<td>10.</td>
<td>Promoting the consolidation of emerging research groups and interactions between emerging groups, associated groups and collaborating groups at IMIBIC.</td>
</tr>
</tbody>
</table>
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 National 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)

**FHRSC**: Fundación Hospital Reina Sofia Cajasur (Reina Sofia 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 Sofia 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)