



IMIBIC

MAIMONIDES BIOMEDICAL
RESEARCH INSTITUTE OF
CORDOBA

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JUNTA DE ANDALUCIA



UNIVERSIDAD DE CORDOBA





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INTRODUCTION

The **Maimonides Institute for Biomedical Research of Cordoba (IMIBIC**, in Spanish) is a **Health Research Institute** founded on April 24th, 2008, following the agreement signed on June 29th, 2007 between the **Andalusian Regional Government's Department of Health**, the same government's **Department of Innovation, Science and Business** and the **University of Cordoba**.

It is positioned within the partnership framework with the **University of Cordoba** and is situated in the vicinity of **Reina Sofia University Hospital**, the **Regional Centre for the Andalusian Public Health System**, which is characterized by its high standards of health care and its solid commitment to the training of health professionals.

Its management body is the **Foundation for Biomedical Research in Cordoba (FIBICO**, in Spanish), which was founded on December 27th, 2007.



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Fundación para la Investigación
Biomédica de Córdoba



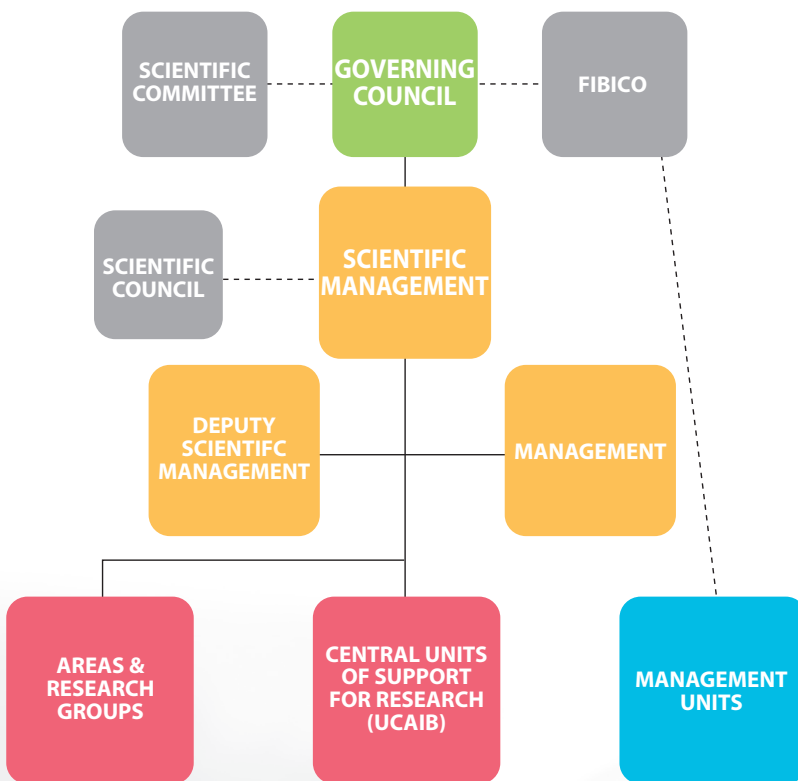
Reina Sofia University Hospital



ORGANIZATION

The organizational and management structure of **IMIBIC** is represented in the organizational chart presented below, which includes:

- **The governing bodies**
- **The advisory bodies**
- **The areas and research groups**
- **The support units for research**
- **The management units.**



Francisco Pérez Jiménez
Scientific Director of IMIBIC



Justo P. Castaño Fuentes
Deputy Director of IMIBIC



José Miguel Guzmán de Damas
Manager of IMIBIC



SCIENTIFIC PROGRAMMES

The **Scientific Programmes** correspond to the health problems focused on by the research carried out by the **Scientific Areas and IMIBIC Groups**. These **Programmes** form the core of the **Scientific Partnership Project** and the different researchers collaborate around them to generate scientific knowledge which is relevant to improving clinical practice and, therefore, the health of people in their environment. These **Programmes** are as follows:

PROGRAMME 1

CARDIOVASCULAR DISEASE. OBESITY AND METABOLIC SYNDROME

This programme includes the study of various aspects of etiopathogenesis, diagnosis, prognosis, prevention and treatment related to Obesity, Metabolic Syndrome and its main complication, cardiovascular disease.

PROGRAMME 2

ONCOLOGY AND ONCOHEMATOLOGY

In this programme, we study the biological factors involved in the development of neoplastic transformation, including the cellular mechanisms, neuroendocrine regulation systems and cellular and extracellular signaling, inflammatory response, oxidative stress, gene regulation, systems foundation repair for the maintenance and control of genetic and epigenetic information, the importance of quiescent precursors in the natural history of leukemia and viral infections, and new therapeutic approaches.

PROGRAMME 3

CHRONIC INFLAMMATORY DISEASES AND INFECTIOUS DISEASES. SENESCENCE

This programme aims to approach the study of various chronic diseases, especially rheumatic ones, and acute and chronic infections, along with the process of senescence, in both the basics and its clinical aspects, from a translational perspective, aimed at generating useful results to help us manage these processes.

PROGRAMME 4

LIVER AND DIGESTIVE DISEASES

This program aims to address the study of liver and digestive diseases from a multifactorial perspective, and in particular the former, with the analysis of the infectious, metabolic and immunologic mechanisms which determine its evolution towards chronicity, focusing on finding new diagnostic and prognostic approaches.



SCIENTIFIC STRUCTURE OF IMIBIC

The **IMIBIC** research groups are integrated in four scientific **Areas**:

AREA **A**

Immunology, Inflammation, Oncology and Infectious Diseases

Coordinador: **Rafael Solana Lara**

Description: This Area brings together researchers whose research approach involves studying the biological response to exogenous or endogenous factors, with special interest in inflammatory, immune, thrombotic and proliferative phenomena related to infectious, rheumatic, cardiovascular and hepatic diseases, as well as aging and cancer.



CODE	RESEARCH GROUP	RESEARCHERS
A-01	T and NK cell immunosenescence. Antiviral immune response.	Dr. Rafael Solana Lara Dr. José Peña Martínez
A-02	Oxidative and nitrosative stress in acute and chronic liver disease.	Dr. Jordi Muntané Relat Dr. Manuel De La Mata García Dr. José Antonio Bárcena Ruiz
A-03	Hypercoagulability	Dr. Francisco Velasco Gimena
A-04	Infectious diseases.	Dr. Julián De La Torre Cisneros Dr. Antonio Rivero Román
A-05	Inflammation and cancer.	Dr. Eduardo Muñoz Blanco
A-06	Cell damage in chronic inflammation.	Dr. Rafael Ramírez Chamond
A-07	Systemic autoimmune diseases and chronic inflammatory diseases of the musculoskeletal system and connective tissue.	Dra. Rosario López Pedrera Dr. Eduardo Collantes Estévez
A-08	New cancer therapies.	Dr. Enrique Aranda Aguilar Dr. Antonio Rodríguez Ariza
A-09	Nephrology.	Dr. Pedro Aljama García
Aas-01*	Lung transplants. Thoracic neoplasms.	Dr. Ángel Salvatierra Velázquez
Aas-06*	Comprehensive nursing care. Multidisciplinary perspective.	Dra. María Aurora Rodríguez Borrego

*Aas: Associated group



AREA **B**

Nutrition, Metabolism and Neuroendocrinology

Coordinator: **Justo P. Castaño Fuentes**

Description: This Area brings together researchers who approach scientific knowledge with the aim of advancing the study of highly prevalent health problems which are closely related and interconnected to each other, and which pivot around diet, metabolism and hormonal regulation and their relation with cardiovascular, endocrine, neoplastic and neurodegenerative diseases.



CÓDIGO	GRUPO DE INVESTIGACIÓN	INVESTIGADORES
B-01	Hormones and cancer.	Dr. Justo P. Castaño Fuentes Dr. Francisco Gracia Navarro
B-02	Nutrigenomics. Metabolic syndrome.	Dr. José López Miranda Dr. Francisco Pérez Jiménez
B-03	Hormonal regulation of energy balance, puberty and reproduction.	Dr. Manuel Tena Sempere Dr. Enrique Aguilar Benítez De Lugo
BE-04**	Insulin resistance, diabetes and metabolism.	Dr. Juan Antonio Paniagua González
BE-05**	Oxidative stress and nutrition.	Dr. Isaac Túnez Fiñana
B-06	Metabolism and adipocyte differentiation. Metabolic syndrome.	Dra. M ^a del Mar Malagón Poyato Dr. Francisco Gracia Navarro
BE-07**	Child metabolism.	Dra. Mercedes Gil Campos
B-08	Epidemiological Research in Primary Care.	Dr. Luis Angel Pérula de Torres
Bas-02*	Endocrinology and Nutrition.	Dr. Pedro Benito López
Bas-03*	Study of growth. Endocrinology and Child Nutrition.	Dr. Ramón Cañete Estrada
Bas-05*	Clinical Analysis.	Dr. Cristóbal Aguilera Gámiz Dr. Fernando Rodríguez Cantalejo Dr. Javier Caballero Villarraso

*Aas: Associated group
** BE: Emergent group



AREA



Regenerative cell therapy. Organ transplants.

Coordinator: **Inmaculada Herrera Arroyo**

Description: This Area includes researchers involved with in-depth transversal research into Cell Therapy and Regenerative Medicine, and Organ and Tissue Transplantation, applied to the most prevalent clinical problems which are involved in this area of health care.



CÓDIGO	GRUPO DE INVESTIGACIÓN	INVESTIGADORES
C-01	Cell therapy.	Dra. I. Concepción Herrera Arroyo
C-02	Invasive cardiology and cell therapy.	Dr. José Suárez De Lezo Cruz-Conde
C-03	Cell biology in hematology.	Dr. Antonio Torres Gómez Dr. Joaquin Sánchez García
C-04	Pathophysiology of endocrine vitamin D system. Biotechnology and aging.	Dr. José Manuel Quesada Gómez
C-05	Translational research in surgery of solid organ transplantation.	Dr. Javier Briceño Delgado
Cas-04*	Urology and Sexual Medicine.	Dra. M ^a José Requena Tapia Dr. Francisco Anglada Curado

AREA



Integrative Medicine and New Technologies

Coordinator: **Rafael Medina Carnicer**

Description: In this area, researchers addressing scientific problems with the use of different technologies are grouped together, with a high potential for application in Health Sciences, including Metabolomics, Proteomics, Epigenetics or Artificial Vision Systems, with the aim of bridging different areas and supporting the various scientific programs prioritized in the **IMIBIC**.



CÓDIGO	GRUPO DE INVESTIGACIÓN	INVESTIGADORES
D-01	Applications of computer vision.	Dr. Rafael Medina Carnicer
D-02	Epigenetics in hematology.	Dr. José Román Gómez
D-03	Behavioral Genetics and Disease.	Dr. Manuel Ruiz Rubio
D-04	Metabolomics. Identification of bioactive components.	Dra. M ^a Dolores Luque De Castro
D-05	Epigenetics.	Dra. Teresa Roldán Arjona
D-06	Calcium metabolism. Vascular calcification	Dr. Mariano Rodríguez Portillo Dra. Yolanda Almadén Peña
DE-07**	Identification of antigenic proteins for the development of new vaccines	Dr. Manuel José Rodríguez Ortega

*Aas: Associated group

** BE: Emergent group



CENTRAL SUPPORT UNITS FOR BIOMEDICAL RESEARCH (UCAIB, in Spanish)



The **UCAIB** consist of a set of services, infrastructure and common scientific equipment at the **IMIBIC** which provides support and technical/methodological advice to the Institute's researchers, as well as to external researchers who request it.

The UCAIB are divided into 7 separate technical units, plus 1 methodological unit supporting research.

It also includes the support of the Biobank platform, the UCICEC of CAIBER and of two Associated Services to the University of Cordoba, the Central Service for Research Support and Animal Experimentation Service.

Thus, a definition of the UCAIB is as follows:

Methodological Support Unit for research

Genomics Unit.

Proteomics Unit.

Microscopy, Cytomics and Scientific Images Unit.

Large Preparatory Teams and Analysis Unit.

Bioinformatics Unit.

Animal Experimentation Unit.

Isotopes Unit.

UCICEC of CAIBER.

Biobank Node.



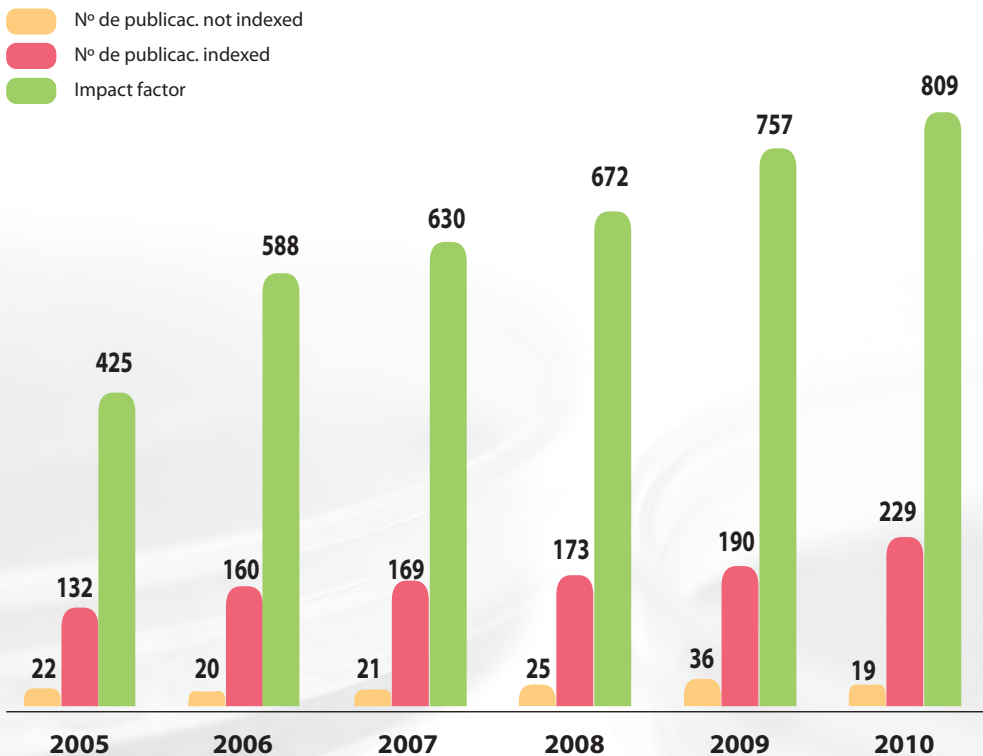
SCIENTIFIC PRODUCTION

The scientific activities carried out in 2010 by researchers at the IMIBIC in their respective groups and areas can be summarized as follows:

- 248 Original **ARTICLES**: 229 published in journals indexed by the Journal Citation Report, which represent an overall net Impact Factor (IF) of 809 points and an average IF per paper of 3.53 points.
- 393 **COMMUNICATIONS**: 282 at national congresses and 111 at international congresses.
- 64 **CONFERENCES**: 48 at national congresses and 16 at international congresses.
- 26 **DOCTORAL THESES** supervised by members of IMIBIC, all of which have obtained a grade of distinction with merit.

At present, 49 **RESEARCH PROJECTS** are taking place and 53 **CLINICAL TRIALS** are being conducted.

The following figure shows the evolution of publications and of the global impact factor over the last six years:





TRAINING

The Institute approaches training as basic, essential and institutional means to achieving its scientific goals, and for this reason, has set out a training programme aimed at promoting knowledge and the shaping the patterns of current research. The **Training** coordinator is **Prof. Eduardo Collantes Estevez**.

The **IMIBIC** leads a **Doctoral Programme** which is unique in **Biomedical Research**, coordinated by **Prof. Francisco Gracia Navarro**, which will help to provide advanced training aimed at improving the human resources, at boosting teaching and research, and at promoting professional qualifications in the field of biomedical sciences, and therefore within the areas of **IMIBIC**.

The three Masters' Degrees in the area of biomedicine currently taught are:

MÁSTER'S DEGREE

Translational Biomedical Research

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



MÁSTER'S DEGREE

Research methodology in Health Sciences

Coordinator: **Prof. Dr. Eduardo Collantes Estévez**



MÁSTER'S DEGREE

Nutrition and Metabolism

Coordinator: **Prof. Dr. Francisco Pérez Jiménez**





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