APPENDIX

There were 233 CNIC publications in 2016, 218 of them in JCR-listed journals with an Impact Factor (IF). Of the total publications, 64% were produced through collaboration with foreign institutions, 31% with national institutions, and 6% were authored solely by CNIC researchers.

A CNIC scientist was a main author on 55% of the publications. The average IF for all the articles was 8.498.

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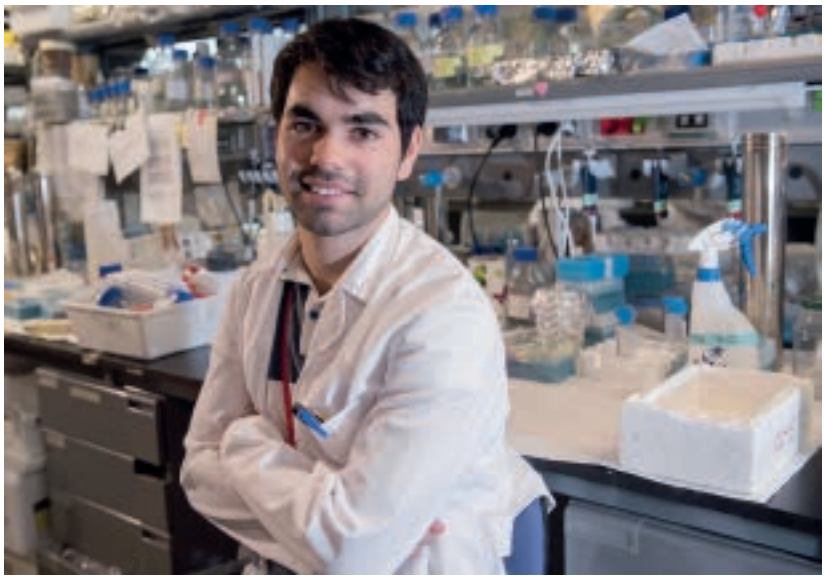

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IF: 1.658

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IF: 1.198

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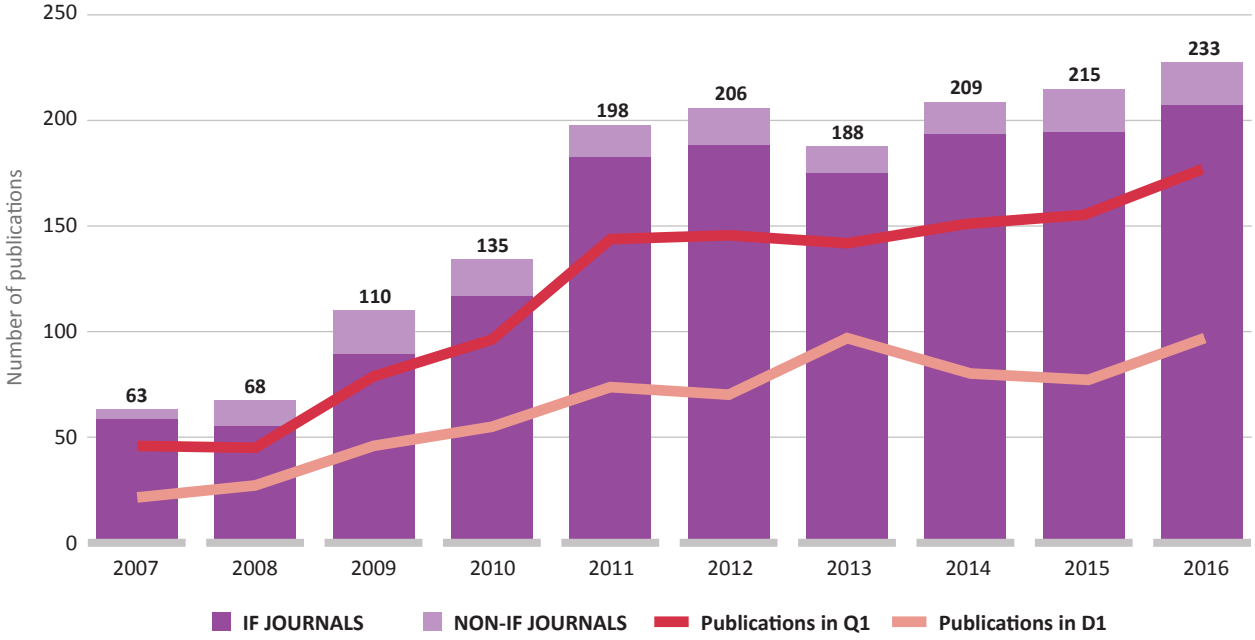
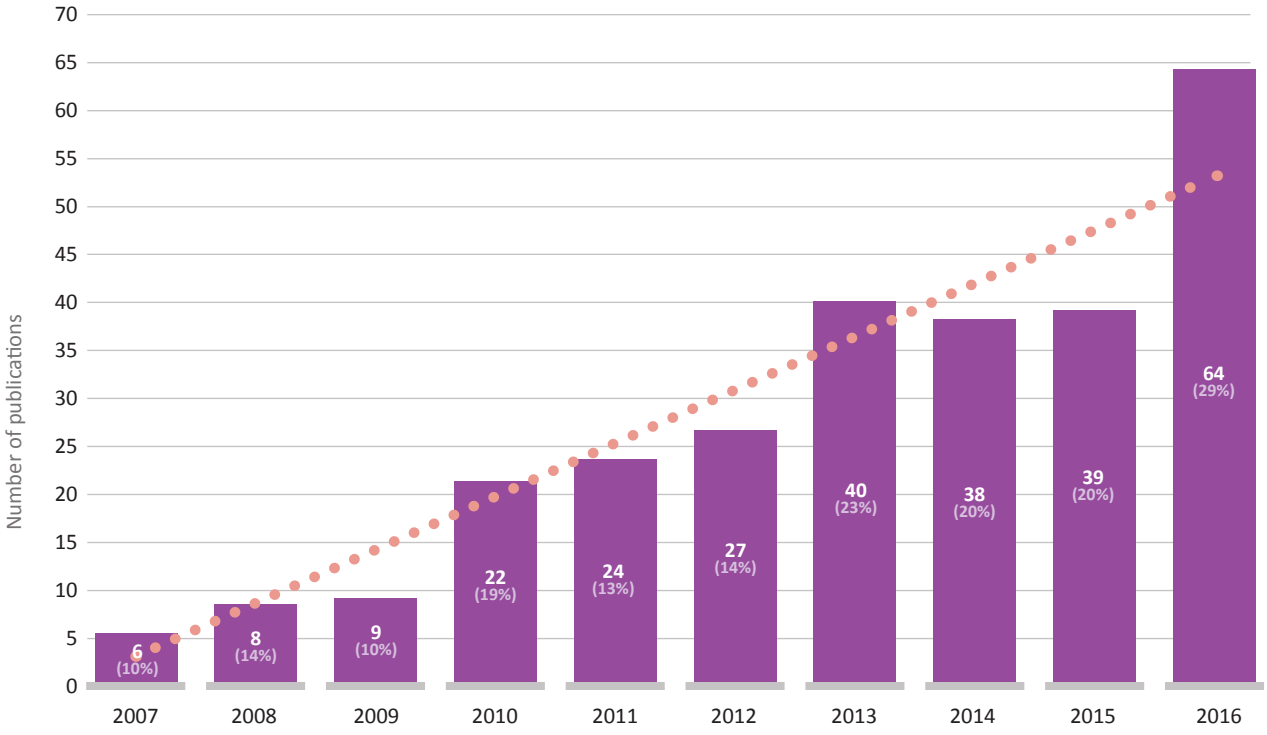
IF: 0.760

SCIENTIFIC PRODUCTION

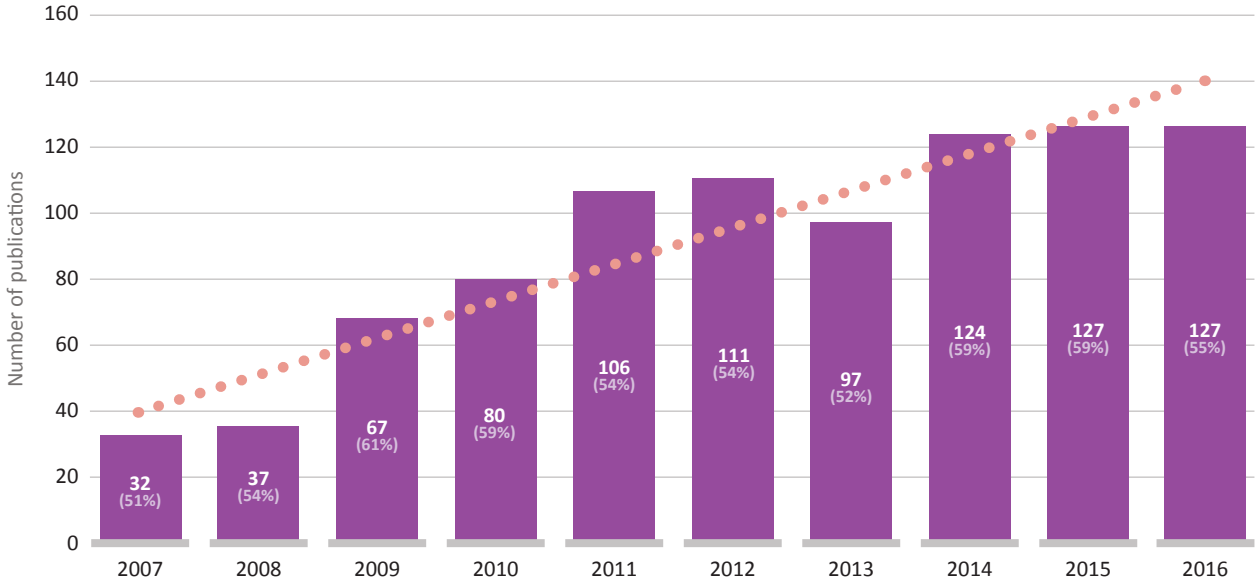


PUBLICATIONS IF>10



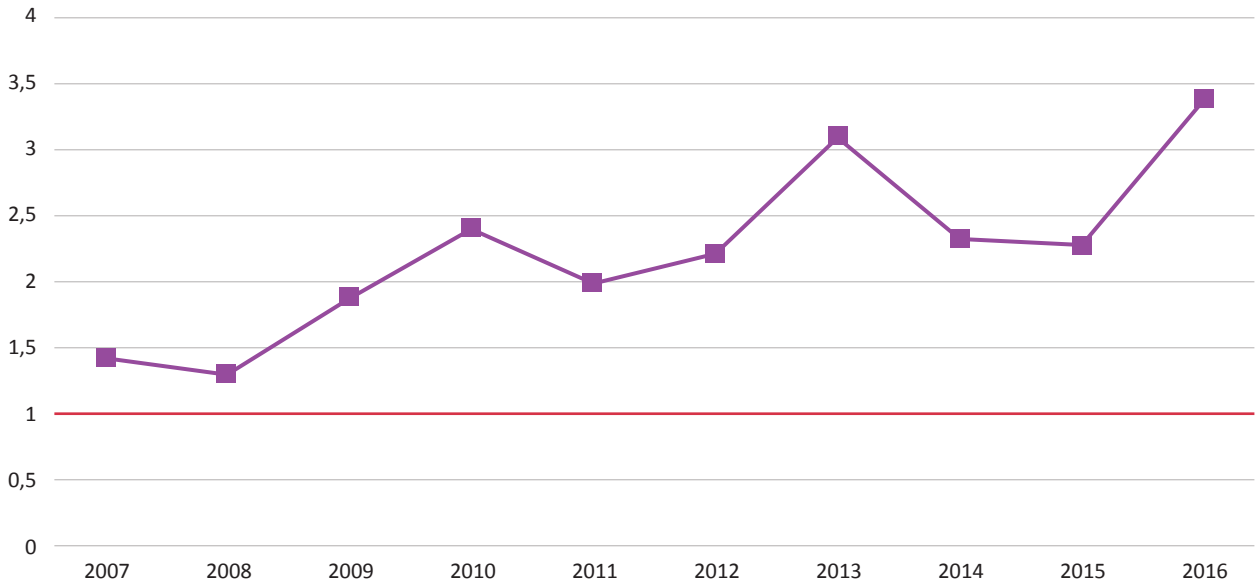
Numbers in brackets show the percentage of publications with IF>10

PUBLICATIONS CNIC MAIN AUTHOR



Numbers in brackets show the percentage of publications with IF>10

NORMALIZED CITATIONS



The Normalized Citation score normalizes the number of citations by comparing them to the mean number of citations to documents of the same type, published in the same year and in the same research area. The world average is about 1, and for example an score of 1.2 means that the analyzed group of articles is cited 20% more than the world average.

Training is one of the CNIC's core activities, and the Center has devised a comprehensive training plan, **CNIC-JOVEN**, which includes programs for people at all levels, from senior high-school students to postdoctoral researchers and other professionals.

The CNIC-JOVEN Training Plan is designed to bring young people into biomedical research and create a strong base of talented researchers in the cardiovascular area.

Pre-university & Undergraduate Students

ACÉRCATE Program

The ACÉRCATE Program offers senior high school students studying natural and health sciences the chance to experience life as a biomedical researcher, with the aim of awakening interest in a career in research.

Participants spend two weeks at the CNIC, learning modern techniques used in biomedical research, conducting supervised experiments, operating sophisticated scientific equipment and presenting the results of their work, all under the supervision of our researchers.

Fellowships in 2016: 8

CICERONE Program

The CICERONE Program is open to Master´s and advanced undergraduate students studying toward a biomedicine-related university degree. Participants extend their scientific training through hands-on experience of laboratory-based biomedical research during the summer recess. In addition to carrying out a supervised research project, the students also attend CNIC seminars and workshops.

The aim of the program is to give students first-hand knowledge of biomedical research so that they can make informed choices about the possibility of pursuing a scientific career.

Fellowships in 2016: 24

Recent Graduates

CARDIOVASCULAR POSGRADUATE Program

The CNIC is developing a Cardiovascular Postgraduate Program, run through collaboration with Spanish universities. The first strand in this Program has been established through a formal agreement with the Universidad Autónoma de Madrid (UAM).

In the academic year 2015-2016, the CNIC partnered in the Masters in Molecular Biomedicine, offering a module in Cardiovascular Disease. This optional module provides a broad overview of cardiovascular biology, including perspectives from basic, clinical and translational research.

Dates: 12 January-17 February 2016
Venue: CNIC
UAM MSc Students: 14
CNIC PhD students: 17

MASTER Program

This grants program provides individual funding for study towards a Masters degree at a Spanish university. The program is directed at students who are going to study for a PhD in one of the CNIC's laboratories: completion of an official Masters (Máster Oficial) has been introduced as an obligatory stage towards a PhD in Spain, in accordance with the Bologna process to standardize academic qualifications across Europe.

Fellowships in 2016: 19

PREDOCTORAL (PhD) Program

The PREDOCTORAL Program provides a unified framework for all researchers at the CNIC who are working toward a doctoral degree. All predoctoral researchers are signed up to this program, independently of their funding source.

The aims of the program are as follows:

> To ensure uniform quality of predoctoral training at the CNIC
> To ensure fair and equal access of predoctoral researchers to training opportunities

Graduate students at the CNIC who obtained their PhD degrees in 2016: 9
Graduate students studying for their PhD theses at the CNIC during 2016: 101

LA CAIXA-SEVERO OCHOA INTERNATIONAL PhD Program

The *la Caixa* Foundation is a non-profit organisation funded by the third largest bank in Spain, the Caja de Ahorros y Pensiones de Barcelona (*la Caixa*). Since 1982, the *la Caixa* Foundation has run various fellowship programs to enable Spanish students to study postgraduate courses in Spain and abroad. Thanks to this support, thousands of students have been able to pursue their studies.

The *la Caixa* Foundation funds fellowships at the CNIC in recognition of the Center's status as one of the Spanish centers of excellence named in the first and second editions of the Severo Ochoa Award. In 2016 the *la Caixa* Foundation provided support for two highly qualified graduate students to carry out their experimental work towards obtaining a PhD degree at the CNIC within an International PhD Program.

***la Caixa* Fellowships in 2016: 2**

Graduates & Medical Professionals

RES@CNIC Program

The aim of the Res@CNIC Program is to offer medical professionals, during the first years of their specialization period as resident interns, the opportunity to learn about and become familiar with the latest techniques in cardiovascular research being used in the CNIC's laboratories, under the guidance of a CNIC scientist. Residents participating in RES@CNIC also receive training in theoretical aspects of cardiovascular research through a taught module run by experts. The Program also seeks to create links and collaborations so that on conclusion of their MIR specialization period, these professionals will have the chance to undertake research projects in their respective National Health System centers in partnership with the CNIC.
RES@CNIC was launched in 2012. Students selected for the fifth call will join the CNIC during January and February 2016.

Selected Candidates for the fourth call: 15

INVESMIR Program

The INVESMIR Program offers medical professionals during their specialization period as resident interns the opportunity to further their training through a research project in one of the CNIC's laboratories, under the supervision of a CNIC scientist.

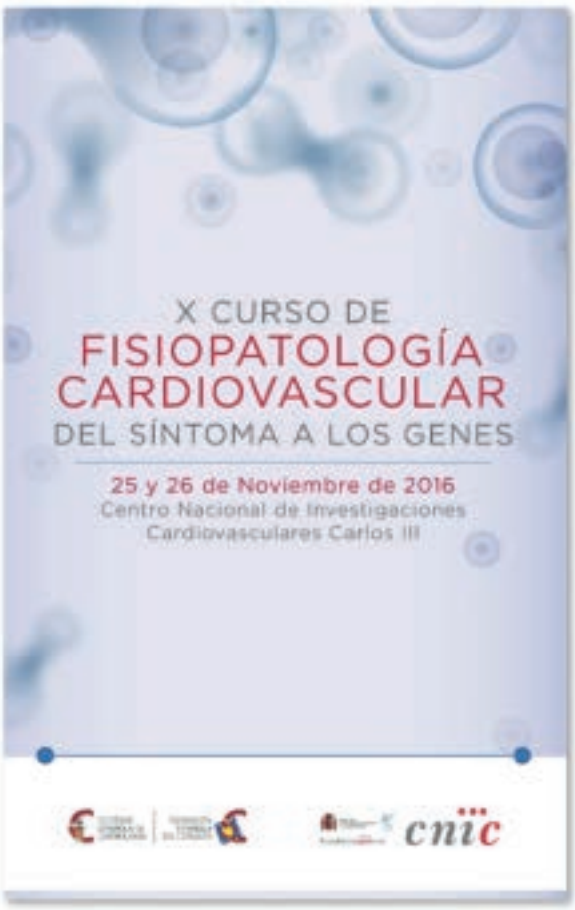
An important aim of the program is that participants establish contacts and collaborations in the CNIC that will support them, after completion of their MIR specialization training, in pursuing their own research projects at their centers within the Spanish National Health System.

Fellowships in 2016: 3

CARDIOVASCULAR PATHOPHYSIOLOGY Course: From symptoms to genes

The CARDIOVASCULAR PATHOPHYSIOLOGY course is offered in collaboration with the Sociedad Española de Cardiología. This course offers a translational vision of cardiology to medical specialists by introducing them to the study of pathophysiology and basic research. Participants are given an overview of the molecular and genetic factors that underlie cardiac diseases and gain an up-to-date vision of cardiac physiology.

Dates: November 25 and 29, 2016
Venue: CNIC Lecture Hall
Attendees: 76



VASCULAR BIOLOGY Course

Dr. Valentín Fuster delivers this lecture series, sponsored by FERRER, on "Vascular biology: basic and clinical research" as part of the summer program of the *Universidad Internacional Menéndez Pelayo* (UIMP).

Dates: July 18-19, 2016
Attendees: 280

Research Professionals

CNIC International Postdoctoral Program

The CNIC International Postdoctoral Program (CNIC IPP) is aimed at supporting transnational mobility of postdoctoral researchers and broadening and deepening their individual competence, particularly in relation to the acquisition of complementary skills needed to become an independent group leader in the future. The program offers fellowships for researchers who hold a PhD Degree at the time of the application deadline.

Fellowships awarded in 2016: 4

The CNIC-IPP is supported by the CNIC and the European Commission under the FP7 Marie Curie Actions- PEOPLE- COFUND Programme.

Research Staff and Students

CNIC Course in Statistics 2016-17

A series of 11 workshops aimed at giving attendees a deep understanding and practical knowledge of the tools used in statistics. Six of the workshops in this program were held in 2016:

Session 1- (21 Sept 2016) CNIC Statistics Course: Session 1- Introductory overview of statistics in medical research.
Attendees: 84

Session 2- (5 Oct 2016) Quantitative outcomes (1): Modeling uncertainty.
Attendees: 72

Session 3- (19 Oct 2016) Quantitative outcomes (II): Hypothesis testing.
Attendees: 42

Session 4- (2 Nov 2016) Design of animal model experiments and publication requirements.
Attendees: 30

Session 5- (19 Nov 2016) Design of clinical trials.
Attendees: 12

Session 6- (30 Nov 2016) Analysis of binary and time-to-event outcomes.
Attendees: 22

Seminars and Events

January

11 **Ido Amit**
Weizmann Institute
Rehovot, Israel

18 **Andrés J López-Contreras**
Center for Chromosome Stability. University of Copenhagen
Denmark

25 **Dennis Discher**
University of Pennsylvania
Philadelphia, USA

February

08 **Dianna M. Milewicz**
The University of Texas Health Science Center
Houston, USA

12 **Michael Potente**
Max Planck Institute for Heart and Lung Research Angiogenesis & Metabolism Laboratory
Bad Nauheim, Germany

22 **Dan Roden**
Vanderbilt University School of Medicine
Nashville, USA

March

07 **Brendan D. Manning**
Harvard School of Public Health
Boston, Massachusetts, USA

15 **Leica - CNIC 1st Practical School in Super-Resolution Microscopy**

April

04 **Ben Lehner**
Centre for Genomic Regulation
Barcelona, Spain

08 **Niroshana Anandasabapathy**
Harvard Skin Disease Research Center
Boston, Massachusetts, USA

11 **3rd CNIC-ZEISS Course**
Light Microscopy and Practical Application

18 **Yixian Zheng**
Carnegie Institution
Baltimore, Maryland, USA

21 **Ya Guo**
MRC Clinical Sciences Centre
Imperial College London
UK

28 **Invitrogen Course. Invitrogen™ EVOS™ imaging systems. Simply stunnihn**

28 **Sami Noujaim**
University of South Florida
Tampa, USA

May

09 **Stefan Neubauer**
Oxford Centre for Clinical Magnetic Resonance Research (OCMR) & Radcliffe Department of Medicine
University of Oxford
John Radcliffe Hospital
UK

23 **Isabel Fariñas**
Universidad de Valencia
Spain

June

02 **Andreas Schlitzer**
LIMES-Institute, University of Bonn
Germany

06 **Hiroshi Hamada**
RIKEN Center for Developmental Biology
Kobe, Japan

07 **Lai Guan Ng**
SIgN-Singapore Immunology Network
Singapore

10 **Israel Valverde**
Hospital Virgen del Rocío & Instituto de Biomedicina de Sevilla
Spain

August

08 **Mark A Febbraio**
Garvan Institute of Medical Research
Sydney, Australia

September

16 **Francesc Posas**
Universitat Pompeu Fabra
Barcelona, Spain

19 **Ludger Johannes**
Institute Curie
Paris, France

21 **CNIC Statistics Course**
Session 1- Introductory overview of statistics in medical research

October

03 **Michael Dustin, NDORMS**
The University of Oxford
Kennedy Institute of Rheumatology
Headington, UK

05 **CNIC Statistics Course**
Session 2: Quantitative outcomes (1): Modeling uncertainty

19 **CNIC Statistics Course**
Session 3: Quantitative outcomes (2): Hypothesis testing

27 **Caro Amezcua**
Yale University
New Haven, Connecticut
USA

November

02 **CNIC Statistic Course**
Session 4: Design of animal models experiments and publication requirements

03 **Vincent Christoffels**
Academic Medical Center University of Amsterdam
The Netherlands

04 **V CNIC Conference**
Mechanical forces in physiology and disease

08 **Semana de la Ciencia**
Jornada ACÉRCATE a la investigación del CNIC

11 **CNIC PhDay 2016**
The PhD and beyond

12 **Semana de la Ciencia**
Un día en familia en CNIC

14 **Francisco Javier Quintana**
Ann Romney Center for Neurologic Diseases
Brigham and Women's Hospital
Harvard Medical School
Boston, USA

16 **CNIC Statistics Course**
Session 5: Design of clinical trials

25 **X Curso de Fisiopatología Cardiovascular**
Del síntoma a los genes

28 **Gerald Dorn**
Washington University
St. Louis, USA

30 **CNIC Statistics Course**
Session 6: Analysis of binary and time-to-event outcomes

December

12 **Hugh Grosvenor Calkins**
The Johns Hopkins Hospital
Baltimore, USA

Awards 2016

Fuster, Valentín

- The Best European Research and Development in Cooperation (11th Edition) from the *Fundación para el Conocimiento madri+d*, for the SECURE project.
- *Premio Ciencias de la Salud*, from the *Fundación Caja Rural de Granad*a ,XII Edition, for his work on "The Progression of Early Subclinical Atherosclerosis".

Alonso Herranz, Laura

- Roche Prize for the best presentation at the XXXVIII *Sociedad Española de Bioquímica y Biología Molecular* Meeting, Salamanca, 5 to 8 September, for "Unraveling new roles for macrophages in cardiac repair upon myocardial infarction".

Ezkurdia, Iakes

- Juan Pablo Albar Prize from the *Sociedad Española de Proteómica* for the best paper published 2014-2015: "Multiple evidence strands suggest that there may be as few as 19000 human protein-coding genes" Human Molecular Genetics (2014) 15: 5866-78.

Sabio, Guadalupe

- *Sociedad Española de Bioquímica y Biología Molecular*-BIOTOOLS Young Investigator Prize, for her work on stress kinase signaling mechanisms involved in metabolic disease.

The CNIC consolidates and expands its alliances to investigate, train, innovate and transfer.

In 2016, the CNIC signed 47 interinstitutional agreements to create or consolidate partnerships.

In the education sector, the CNIC expanded its already wide academic network by signing new collaboration agreements with universities in Spain (Universidad Europea, Universidad CEU San Pablo, Universidad Pompeu Fabra, Universidad de Córdoba, Universidad de Barcelona, Universidad Miguel Hernández, Universidad de Sevilla, and Universidad Rey Juan Carlos). Moreover, the CNIC also strengthened its links with foreign universities, mostly through the establishment of student exchange programs and short visits for practical work in the CNIC's laboratories. Two new international agreements were signed last year (Université Paris Diderot, France, and University of Amsterdam, The Netherlands).

Links with the clinical sector have been consolidated through the signing of new agreements with Spanish clinical organizations such as the *Instituto de Investigación Sanitaria de la Fundación Jiménez Díaz de Madrid* (IIS-FJD) to facilitate the development of clinical assays, exchange and training of medical professionals and scientists. This agreement is specifically focused on promoting the clinical application of research results in patients with acute myocardial infarction. Moreover, development of multicenter randomized clinical trials coordinated by the CNIC has been strengthenened by the establishment of a new partnership with the E*mpresa Pública de Emergencias Sanitarias* (EPES 061). This collaboration will act as a central contact point for better management and treatment of cardiac arrest in Spain.

Finally, thanks to the new strategic alliance established between the CNIC and the *Centro Vasco de Investigación Cooperativa en Biomateriales* (BiomaGUNE), the ReDIB (*Red Distribuida de Imagen Biomédica*) Singular Scientific-Tehcnological Infrastructure (SSTI) has launched its first 2 calls for proposals, offering the scientific and industrial communities a unique infrastructure in biomedical imaging.

From left to right: Dr. Petra Sanz (Head of Cardiology, Hospital Universitario Rey Juan Carlos), Dr. Vicente Andrés (Director of Basic Research Department, CNIC), D. Alberto Sanz (Managing Director, CNIC), Dr. Borja Ibáñez (Director of Clinical Research Department, CNIC and Head of Cardiology Research, Fundación Jiménez Díaz, FJD), Dr. Valentín Fuster (General Director, CNIC), D. Juan Antonio Álvaro de la Parra (Managing Director, Hospital Universitario FJD and Hospital General de Villalba), Dr. Carmen Ayuso (Director of Instituto de Investigación Sanitaria de la FJD and Head of Genetics Service, FJD), Dr. Felipe Navarro (Head of Cardiology of Hospital General de Villalba and Head of Intervention Cardiology, FJD) and Dr. Jose Angel Cabrera (Head of Cardiology, Hospital Quirón de Madrid-Pozuelo).

Public-Private Partnership

In December 2005, the Spanish Government signed an agreement with a group of some of the most important Spanish businesses (Pro CNIC Foundation, http://www.fundacionprocnic.es) to sponsor the CNIC.

Since the signing of this agreement, the CNIC's funding has been based on a public-private partnership (PPP) of a broad, socially-committed nature. The Pro CNIC Foundation does much more than provide the CNIC with money; it also contributes its accumulated managerial and business expertise. Representatives of the Pro CNIC Foundation sit on the CNIC's Board of Trustees and actively participate in the management, planning and decision taking related to the Center.

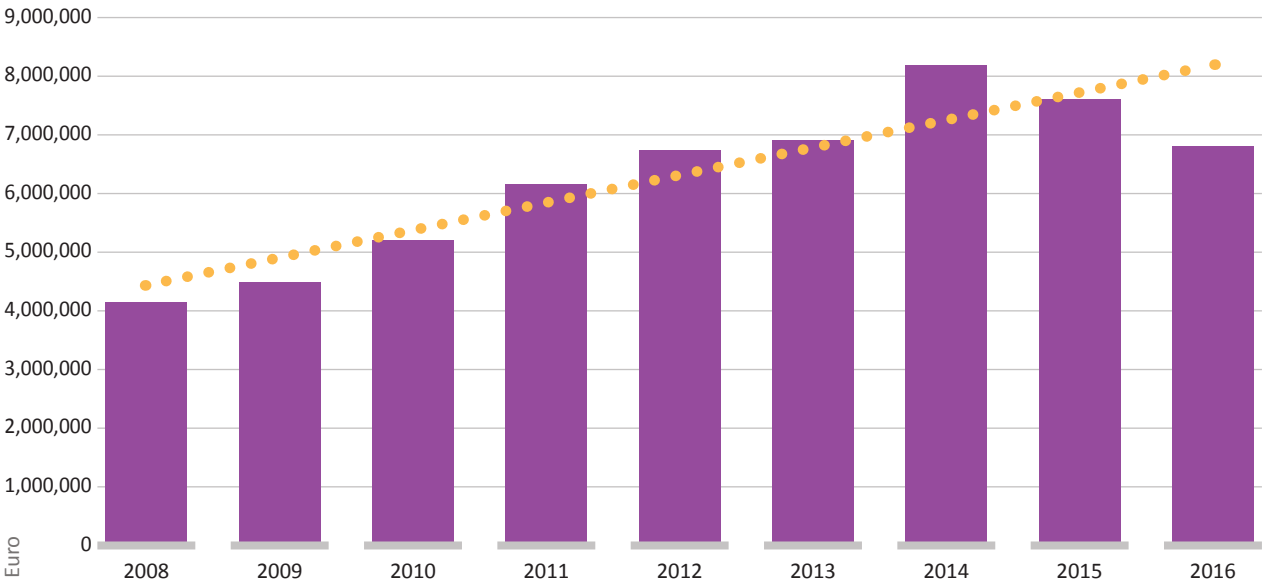
A major strength of this socially-committed PPP model is that it provides a more solid base than traditional forms of charitable financing, giving the CNIC a more stable financial base than it would have if it depended on sporadic donations from benefactors. This stability gives the CNIC greater freedom to commit itself to long-term, high-return research strategies in collaboration with public and private institutions, and allows for a more effective use of its own resources generated through competitive projects and the exploitation of intellectual property rights.

The current members of the Pro CNIC Foundation are **Acciona**, **BBVA**, **Endesa**, **Fundación Abertis**, **Fundación Mutua Madrileña**, **Fundación Mapfre**, **Santander**, **Fundación Ramón Areces**, **Fundación Repsol**, **Gas Natural Fenosa**, **Grupo Prisa**, **Inditex**, **la Caixa**, and **Telefónica**.

Private Funding

National Competitive Funding

Since 2006 the CNIC has attracted **more than €73 million from national competitive sources**. In 2016 alone the CNIC research attracted more than €11 million from public funding agencies, including renewal of the prestigious accreditation as a *Severo Ochoa* Center of Excellence for a further 4 years (2016-2019)



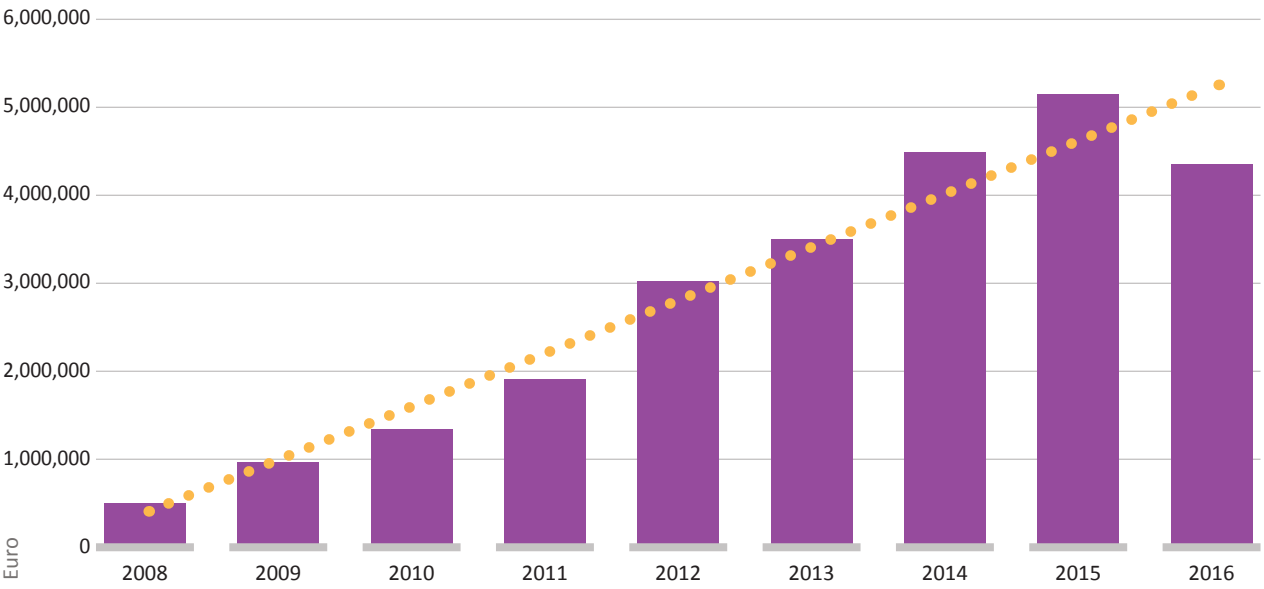
International Competitive Funding

Since 2006, the CNIC has attracted **more than €34 million from international competitive sources**.

The CNIC participated in **34 projects funded under the European Commission's Seventh Framework Programme (FP7)** and is engaged in **16 projects** funded under the EU Research and Innovation **Horizon 2020 (H2020)** programme. Moreover, the Center is the top-ranking Spanish institution for funding awarded under the EC Societal Challenge *Health, Demographic Change and Wellbeing* (H2020-2014 call).

The international scientific competitiveness of the CNIC's research groups is highlighted by their high representation in projects funded by the **European Research Council (ERC)**, which funds Europe's brightest minds to tackle innovative research challenges. The CNIC contributes to the achievement of this goal through **5 ERC projects awarded under FP7 and 4 awarded under H2020**.

The CNIC´s commitment to researcher training is confirmed by its prominent participation in the **Marie Curie-Skłodowska** programme: **21 projects in FP7** and **5 in H2020**, including **1 Coordinated Industrial Doctorate ITN**.



Sixteen inventions are currently being filed, nine of them in partnership with other institutions.

TECHNOLOGY OFFERS AVAILABLE FOR OUT-LICENSING

TITTLE	INVENTORS	APPLICANTS	PATENT APPLICATIONS
Methods of using the Calcineurin A variant CnAB1 for the treatment of cardiac hypertrophy	Enrique Lara Pezzi, Nadia Rosenthal, María López Olañeta, María Villalba Orero, Jesús Gómez Salinero.	CNIC, EMBL	PCT, US, EP
Uso de agonistas selectivos de receptores beta-3 adrenérgicos para el tratamiento de hipertensión pulmonar	Borja Ibañez Cabeza, Valentín Fuster Carulla, Ana García-Álvarez	CNIC , CLINIC	PCT, JP, US, EP
Terapia neuroregeneradora/neurocompensatoria para el tratamiento de las neoplasias mieloproliferativas	Simón Méndez Ferrer, Lorena Arranz Salas, Joan Isern Marín	CNIC	PCT, JP, US, EP
Single core radionuclide-metal oxide nanoparticles: a new biocompatible nanosystem for dual hot spot imaging	Jesús Ruiz-Cabello Osuna, Fernando Herranz Rabanal, Riju Bhavesh, Juan Pellico Sáez	CNIC, UCM	EP, PCT
Method of predicting or prognosticating neurological performance in patients who have suffered a cardiac arrest and optionally comatose status due to ventricular fibrillation	David Filgueiras Rama, Esteban López de Sá y Areses, José Millet Roig, Conrado Javier Calvo Sainz	CNIC, UPV, Hospital Universitario La Paz	EP, PCT
Method and system for generating MR images of a moving object in its environment	Javier Sanchez Gonzalez, Nils Dennis Nothnagel, Borja Ibáñez Cabeza, Rodrigo Fernández Jiménez, Valentín Fuster Carulla	Philips, CNIC	EP, PCT
Método de detección de predisposición a padecer cardiopatía dilatada	Pablo Garcia Pavía, Sofía Cuenca, Laura Padrón de Vaumas, Enrique Lara Pezzi	Fundación Investigación Hospital Puerta de Hierro; CNIC	ES
MiRNA compositions for the treatment of mature B-cell neoplasms	Almudena Rodríguez Ramiro, Nahikari Bartolomé Izquierdo, Virginia García de Yébenes Mena	CNIC	EP, PCT
p38 inhibitors for the treatment and prophylaxis of liver cancer	Ana Martinez Gil, Carmen Gil Ayuso-Gontán, Guadalupe Sabio Buzo, Antonia Tomás Loba, Bárbara González Terán, Elisa Manieri	CNIC, CSIC	EP, PCT
Procedimiento de obtención de datos útiles para el diagnóstico de cardiomiopatías	María Pilar Martín Fernández; Raquel Sánchez Díaz, Adela Matesanz Marín, Luis Jesús Jiménez Borreguero, Francisco Sánchez Madrid	CNIC	EP, PCT
Tratamiento y diagnóstico de Aneurisma Aórtico Torácico	Juan Miguel Redondo Moya, Nerea Méndez-Barbero, Jorge Oller Pedrosa, Miguel Ramón Campanero García	CNIC, CSIC, UAM	EP, PCT
Nuevos radiofármacos para el diagnóstico *in vivo*	Jesús Ruiz-Cabello, Jesús Mateo, Samuel España	CNIC	EP

Patent Applications:
ES - Spain
PCT - International
EP - Europe
US – USA
JP- Japan

ACTIVE LICENSED AGREEMENTS

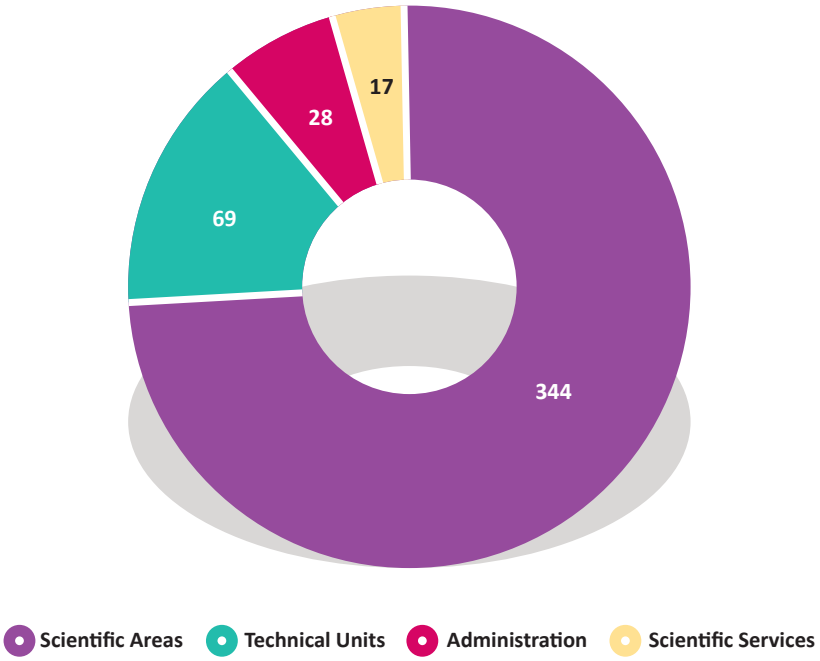
TITLE: "Capsule for the prevention of cardiovascular diseases"
APPLICANTS: CNIC, FERRER
LICENSEE: FERRER

TITLE: "Method for identifying senescent mesenchymal stem cells"
APPLICANTS: CNIC
LICENSEE: NIMGenetics

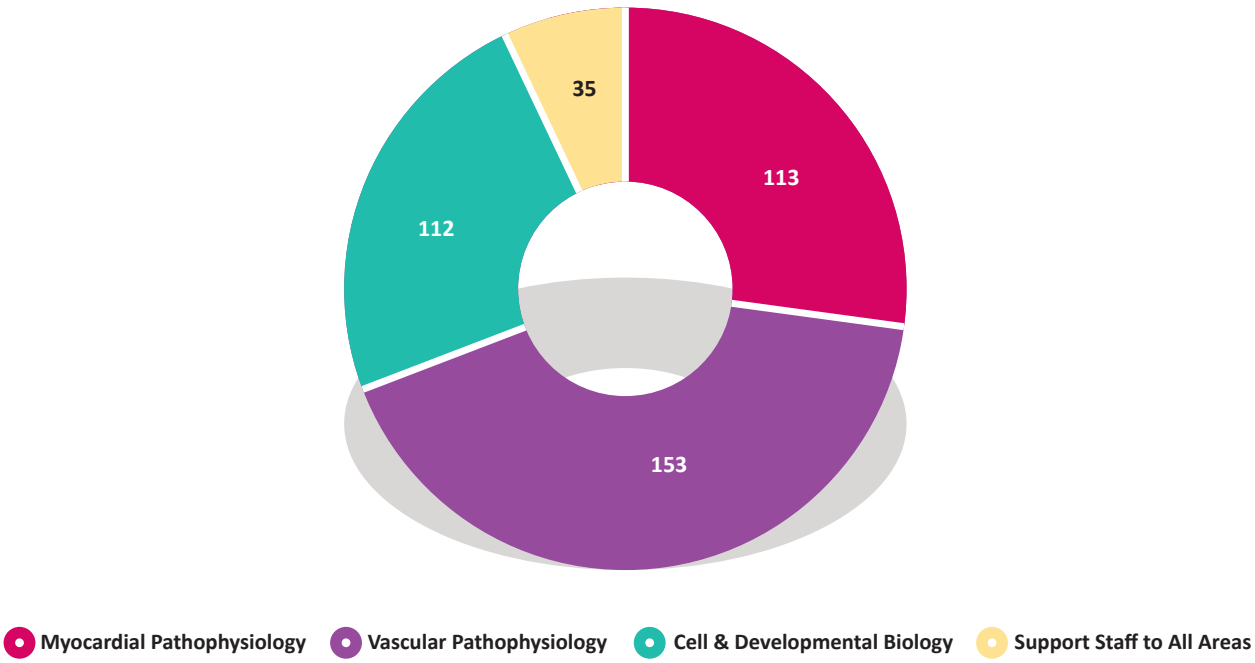
TITLE: "Vectores de expresión de proteínas: plásmidos pGEX-Calcineurina, pGEX-FKBP12 y pGEX-Ciclofilina A"
APPLICANTS: CNIC
LICENSEE: PROTEIN ALTERNATIVES S.L.

TITLE: "New biosafe viral vectors: non-integrating lentiviral episomes"
APPLICANTS: CNIC
LICENSEE: VIVEbio TECH S.L

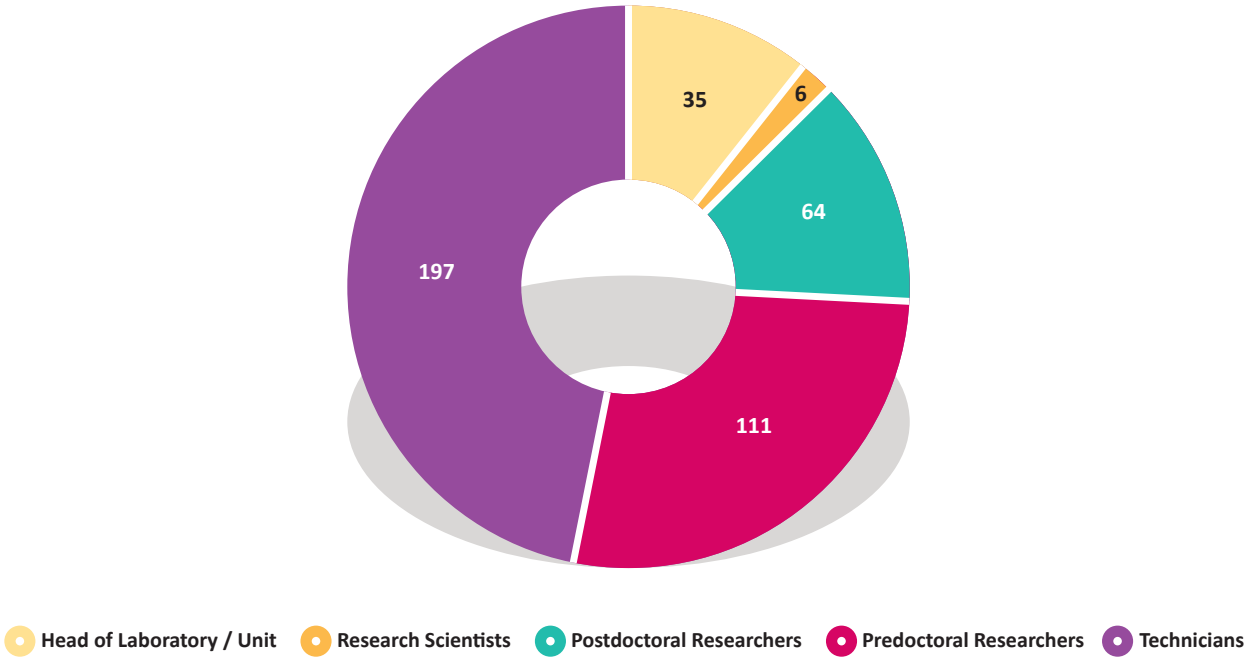
CNIC STAFF 2016 (458)



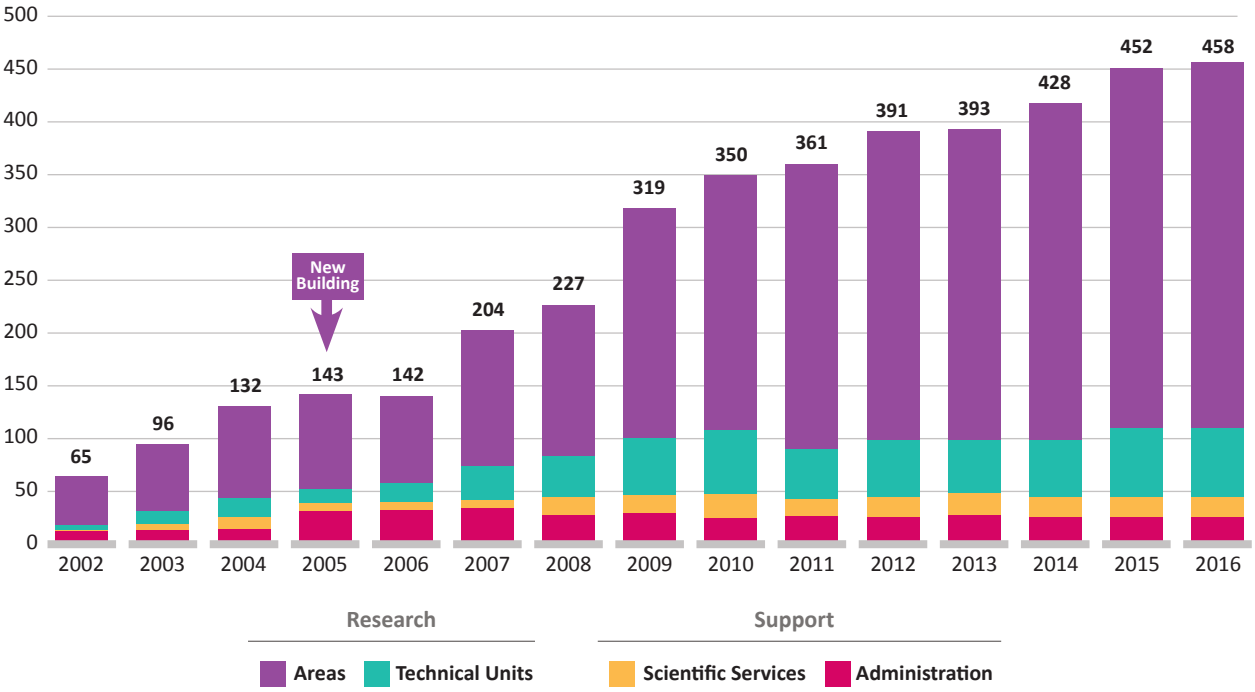
STAFF BY RESEARCH AREA 2016 (413)



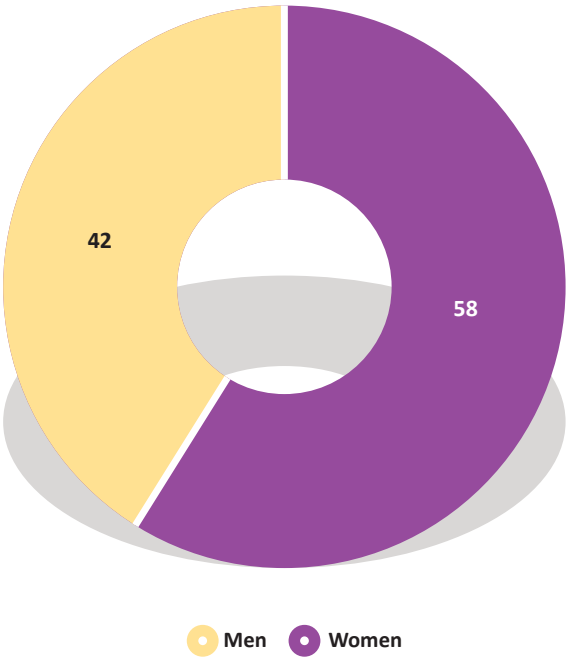
CNIC RESEARCH STAFF 2016 (413)



GRADUAL GROWTH CURRENT STATUS



GENDER DISTRIBUTION 2016



AGE DISTRIBUTION 2016