

4. CNIC news & views

AWARDS, SCHOLARSHIPS & HONORS

The Grand Cross of *Alfonso X el Sabio* awarded to Valentín Fuster

The Council of Ministers, at the request of the Ministry of Education, Culture and Sports, has awarded the Grand Cross of the *Orden Civil de Alfonso X el Sabio* to CNIC General Director Dr. Valentín Fuster. This award rewards Spanish and foreign individuals who have distinguished themselves through outstanding contributions in the fields of education, science, culture, teaching, and research in Spain or internationally.



Borja Ibáñez receives the XII Banco Sabadell Foundation Award for Biomedical Research

The XII Banco Sabadell Foundation Award for Biomedical Research has been presented to CNIC Clinical Research Director Borja Ibáñez Cabeza for his innovative contribution to the fight against cardiovascular disease through the transfer of basic knowledge and technology to disease prevention and treatment. The prize includes a financial award

of €50 000 and acknowledges the career trajectory of young researchers in biomedicine. A total of 58 submissions were received for the 2017 award, including applications from investigators with basic, clinical and epidemiological research profiles.



The *La Caixa* Bank Foundation pays tribute to biomedical researchers

The *La Caixa* Bank Foundation's *Imprescindibles* campaign shines a light on the invaluable contribution made by scientists who dedicate their lives to fighting disease and helping to preserve that most valuable of assets, our health. *La Caixa* Bank Foundation President Isidro Fainé and General Director Jaume Giró, accompanied by Drs. María Blasco, Valentín Fuster, Maite Mendioroz, Eduard Gratacós, Bonaventura Clotet, and Pedro Alonso, joined in the launch of a new advertising campaign that gives a voice to Spanish researchers leading the fight against the diseases with the biggest impact on health in Spain and worldwide. The campaign presents the testimonies of Spanish biomedical research leaders and outlines the essential features

of their research. In his contribution, Fuster notes that “there are two keys to promoting cardiovascular health: science and education.”



David Sancho receives the *Constantes y Vitales* Young Talent Award for Biomedical Research

The *Constantes y Vitales* program is an initiative of the TV channel *laSexta* together with the AXA Foundation with the aim of supporting and strengthening Spanish biomedical research and promoting health. In its third year, the Young Talent Award went to CNIC group leader David Sancho, in recognition of his talent and scientific leadership in Spain.



Eduardo Oliver awarded the Spanish Pharmacology Society Young Researcher Award

CNIC researcher Eduardo Oliver has been awarded the Spanish Pharmacology Society's Young Researcher Award, which recognizes the track record of members under 35 years of age. The award comes with a prize of €1200, shared with the other award winner, Miguel Romero of the University of Granada. Oliver's new award joins another he received last year from the Federation of European Pharmacological Societies for his article *The zinc transporter ZIP12 regulates the pulmonary vascular response to chronic hypoxia* (*Nature*, 2015; 524:356-360).



Valentín Fuster, new President of the Health Advisory Board

Valentín Fuster has been appointed President of the Health Advisory Board, replacing Joan Rodés, who was President until his death earlier in 2017. During the official investiture of Fuster, Dolors Montserrat, Spanish Minister of Health, Social Services, and Equality, paid special tribute to Fuster's commitment to spreading the message that “we must be active protagonists of our own health.”



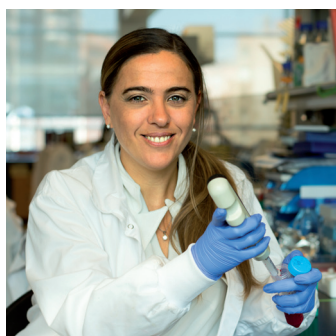
Four CNIC students receive the Certamen Arquímedes Award

The four students are supervised by CNIC researchers, and each student and supervisor will receive a financial award: the prizewinners get €6000 each and the supervisors €2000. Runners up and their tutors receive €2000 each.

Researchers and Cultural Creators

CNIC group leader Guadalupe Sabio received one of 50 *Fundación BBVA* Leonardo Scholarships for Researchers and Cultural Creators in the area of basic research for her project *Inhibition of p38 gamma as a possible therapeutic target for liver cancer*. The 2017 Leonardo Scholarships recognized achievements in nine categories: Basic Sciences (Physics, Chemistry, and Mathematics); Biology, Environmental and Earth Sciences; Biomedicine; Information and Communication Technologies; Engineering and Architecture; Economics and Business Management; Legal and Social Sciences; Humanities; and Literary Creation and Theater.

Guadalupe Sabio was also selected as one of the 100 Top Woman Leaders in Spain in 2017, in an initiative aimed at boosting the presence of women in all areas. With this award, Sabio joins a select group that includes Her Majesty Letizia Ortiz, Almudena Grandes, Amaya Arzuaga, Amaya Valdemoro, Carmen Alborch, Carmen Iglesias, Irene Milleiro, Julia Otero, Margarita Álvarez, María José Alonso, and Marta Martínez Alonso.



SCIENTIFIC EVENTS

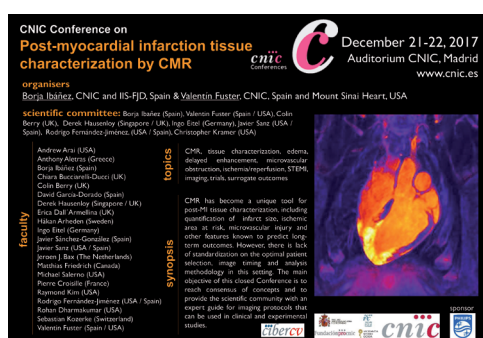
CNIC Conference *Atrial Fibrillation: from Mechanisms to Population Science*

The 2017 CNIC Conference on atrial fibrillation covered the spectrum from the underlying genetics to new advances in therapy. The conference brought together 126 international experts in atrial fibrillation with different areas of expertise.



CNIC Conference *Characterization of postmyocardial infarction tissue by CMR*

The CNIC organized this scientific meeting to sketch out new guidelines for the use of CMR imaging in patients suffering an MI. The main goal of the meeting was to reach a consensus on the appropriate protocols to use to characterize the physiological damage caused by an infarction. The meeting was held on 21-22 December, was attended by internationally renowned cardiologists and MRI specialists and was sponsored by Philips. The meeting once again underlined the central position of the CNIC in cardiovascular research.



PhDAY2017: State of the Art

Another year brought another edition of the CNIC PhDay. This one-day event, run by and for early-stage researchers, matches the quality of any internationally renowned conference. PhDay is an open forum for students, graduates, laboratory technicians, and postdoctoral researchers where participants share their research, exchange ideas, and explore career options. In 2017 PhDay celebrated its 4th year.



Fuster participates in the presentation of the 2017 report on *Global Health and the Future Role of the United States*

Valentín Fuster, who doubles his role as CNIC General Director with his position as Director of the Cardiovascular Institute and Physician-in-Chief at Mount Sinai Hospital in New York, was appointed co-director of the committee on Global Health and the Future Role of the United States in September 2016, together with US Assistant Secretary of State for African Affairs Jendayi Frazer. The Committee advises the Presidency on strategies to improve global health through multidisciplinary approaches and provide efficient and responsible use of government resources.



Jules Hoffman: How to be a Creative Scientist

Nobel laureate Profesor Jules Hoffmann visited the CNIC in an event sponsored by the AstraZeneca Foundation as part of the Nobel Prize Inspiration Initiative (NPPII). Professor Hoffman presented the audience with his vision of how to be a creative scientist.



The CNIC hosts the 31st annual meeting of the European Macrophage and Dendritic Cell Society (EMDS)

The CNIC hosted the 31st annual meeting of the European Macrophage and Dendritic Cell Society (EMDS), which was organized on this occasion by Amaya Puig of the *Gregorio Marañón* Health Research Institute, Antonio Castrillo of the *Alberto Sols* Biomedical Research Institute, and CNIC group leader David Sancho. The meeting brought more than 220 researchers together in Madrid.

CNIC Invited Seminars: 13 Seminars (www.cnic.es/es/actualidad/agenda)

OUTREACH ACTIVITIES

The CNIC participates in *Science Weekend*

The VII edition of the *Science Weekend*, the science fair with something for everyone, celebrated its fourth consecutive year at the National Museum of Science and Technology in Alcobendas, Madrid on 27-28 May. The event, supported by the *La Caixa* Foundation, enjoyed the participation of more than 40 institutions from all over Spain, with the CNIC proud to be among their number. In all, more than 200 activities, workshops, and games were offered to visitors to promote interest and education in science and technology.

CNIC groups also participated for the sixth year running in the Madrid regional *Science Week* with two new activities: *A family day at the CNIC* for smaller children, and the workshop *Life in 3D: new developments in microscopy* for a general public audience. This last activity was promoted by the grant BFU 2015-70193 REDT



The CNIC affirms its commitment to science and gender equality

Carmen Vela, Secretary of State for Research, Development, and Innovation, chaired this conference held to mark International Women and Girls in Science Day at the CNIC.



The Health Minister supports the *Women for the Heart* campaign

The MAPFRE Foundation, Pro-CNIC Foundation, and Spanish Heart Foundation joined with the Madrid Regional Government to promote this campaign, now in its second year. The campaign was awarded the *Premio iMujer* (iWoman Prize) in the Health Initiative category. This ground-breaking campaign aims to raise awareness among women and girls about the need to adopt healthy lifestyle habits in order to prevent cardiovascular disease.



March for Science: Move for the CNIC

There is no better way to promote cardiovascular health than teaching by example. Promega Biotech Ibérica joined the CNIC in organizing the *Move for the CNIC* event in March. This sports day brought staff from the CNIC and Promega together with family members to join in a range of physical activities in *El Pardo*, near Madrid. For each person enrolled in the event, Promega made a donation to the CNIC training programs.



GRANTS

Launch of the Severo Ochoa Centers and María de Maeztu Units of Excellence Alliance (SOMMA)

The Spanish *Severo Ochoa* Centers and *María de Maeztu* Units of Excellence Alliance promotes excellence in scientific research. The goal is to promote Spanish science through the recognition of researchers working at the forefront of their fields, helping them increase their impact, international scientific leadership, and competitiveness.



A CNIC project researching new treatments for progeria, funded within the E-Rare 2017 call for proposals

The project is called *Identifying new treatments for Hutchinson-Gilford progeria syndrome (HGPS)*, or *TREAT-HGPS* for short, and is coordinated by Vicente Andrés, Basic Research Director at the CNIC and a participant in the cardiovascular disease *Centro de Investigación Biomédica en Red (CIBER-CV)*. The project was selected in the E-Rare joint transnational call for 2017: *Transnational Research Projects for Innovative Therapeutic Approaches for Rare Diseases*. Funding of €797 744 will be provided over the next three years (2018-2020).



The CNIC is the first Spanish center to coordinate a Leducq Foundation project

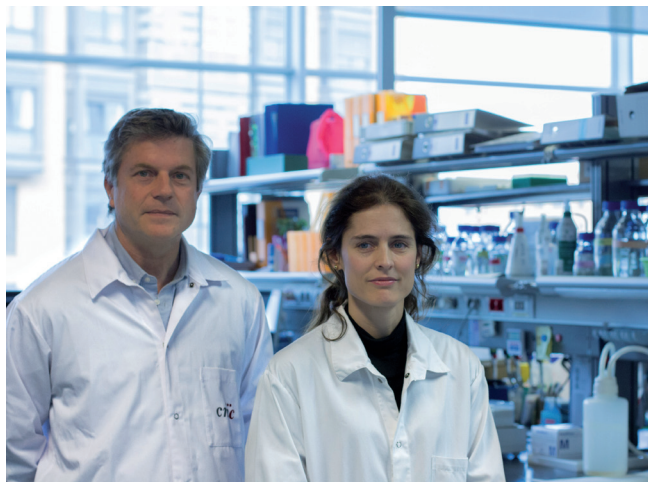
For the first time, the Leducq Foundation has selected a project co-coordinated by a Spanish center, the CNIC. The *Redox Regulation of Cardiomycocyte Renewal* project, coordinated by CNIC researcher Miguel Torres and Hesham A. Sadek of the University of Texas Southwestern-Dallas Medical Center, is one of five projects selected by the Transatlantic Network of Excellence Program of this prestigious foundation, and will receive \$6 000 000 over five years. Of this total, \$800 000 is destined to the CNIC. The project start date is January 1, 2018, with the launch meeting scheduled for January 28 and 29.



Launch of the 4DHeart Project

The 4DHeart project (4D Analysis of Heart Development and Regeneration Using Advanced Light Microscopy) was launched on January 1, 2017. This European Commission financed European Industrial Doctorate (EID) project is coordinated by Miguel Torres at the CNIC and has a total funding of €1.5 million spread over 4 years. The goal of the project, part of the European Union H2020 Programme, is to foster research partnerships between academia and industry. The 4DHeart

training project includes the participation of 12 European institutions as training centers young scientists.



NEW PARTNERSHIPS

Two of the of the largest research cohort studies in Spain join forces to prevent atherosclerosis and Alzheimer's

The CNIC and the *Pasqual Maragall* Foundation's *Barcelonabeta* Brain Research Center have come together to investigate the relationship between atherosclerosis and Alzheimer's disease. The agreement covers vascular imaging, cognitive imaging, and neuroimaging in cohort participants at both centers, a total of more than 6000 healthy individuals, making this the largest initiative of its kind in the world.



The CNIC and the SEC encourage young cardiologists to engage in cardiovascular research

The Spanish Society of Cardiology (SEC) and the CNIC have created an ambitious joint plan of postgraduate training for cardiologists in order to promote good quality research in the cardiovascular field.



CNIC & SOCIETY

The King and Queen visit the CNIC

Their Majesties the King and Queen of Spain visited the CNIC in February. The royal visitors were accompanied by Dolors Montserrat, Minister of Health, Social Services, and Equality; Carmen Vela, President of the Board of Trustees of the CNIC and Secretary of State for Research, Development, and Innovation; and Jesús Fernández Crespo, Vice-president of the CNIC Board of Trustees and Director of the *Carlos III* Institute of Health. During their visits, their Majesties learned about the ongoing research projects at the center from CNIC General Director Valentín Fuster and Pro-CNIC Foundation Board of Trustees President Luis de Carlos.



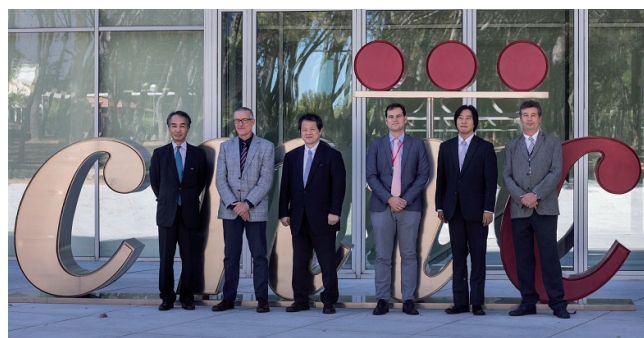
The Madri+d Foundation visits the CNIC

The director of the Madri+d Knowledge Foundation, Jesús Sánchez Martos, visited the CNIC to learn first-hand about its main lines of research and explore new ways to collaborate.



The Japanese Agency for Research and Medical Development at the CNIC

The CNIC hosted this visit from the President of the Japanese Agency for Research and Medical Development (AMED), Mr. Makoto Suematsu, the Managing Director of the Foreign Affairs Department, Mr. Masahiko Noda, and the First Secretary - Aggregate of Science and Technology – of the Japanese Embassy in Spain, Mr. Masahiro Aoki. AMED is the government agency responsible for improving medicine through research and development in Japan.



Visit of the European Commission Health and Food Safety Commissioner

The European Commission Health and Food Safety Commissioner, Vytenis Andriukaitis, visited the CNIC, accompanied by Spanish Health Minister Dolors Montserrat, Secretary of State for Research Carmen Vela, Food Safety Agency Director Teresa Robledo, *Carlos III* Institute of Health Director Jesús Fernández Crespo, CNIC Manager Alberto Sanz, and CNIC Clinical and Basic Research Directors Borja Ibáñez and Vicente Andrés.



A benefactor names the CNIC his sole heir

An anonymous citizen has named the CNIC as his sole beneficiary, donating all his assets to the CNIC in his will. Altruistic acts of this kind are less common in Spain than in English-speaking countries, where there is a more established tradition of charitable donation. The unnamed benefactor in this case is a person with a deep respect for the work of Spanish scientists as well as close personal experience of the world of health care, having witnessed the day-to-day operation of hospitals and seen the need to continually equip medicine with new advances through research. For this generous benefactor, the CNIC is a clear example of this commitment to translating research into improvements in health, and for this reason deserved special consideration.

REACHING THE PATIENT

Fuster Polypill

The first polypill approved in Europe for secondary cardiovascular prevention was developed by CNIC researchers in collaboration with the pharmaceutical company Ferrer. Marketed under the name Trinomia, this polypill has been commercialized in 55 markets in Europe and Latin America after gaining the approval of the European Medicines Agency and national agencies. Trinomia includes three active ingredients: the antiplatelet drug aspirin to prevent the formation of thrombi, the statin atorvastatin to control cholesterol levels and stabilize atherosclerotic plaques, and the ACE inhibitor ramipril, which regulates blood pressure and prevents remodeling of the heart after a heart attack. Since September 2017, Trinomia is available in with a 40 milligram dose of atorvastatin, double the previous 20 milligram dose available since January 2015. Trinomia is given to patients who have had a cardiovascular event and require treatment to reduce the risk of recurrence. This product of public-private collaboration between the CNIC and Ferrer is an example of how Spain can be a world leader in innovation.



Ultrafast magnetic resonance

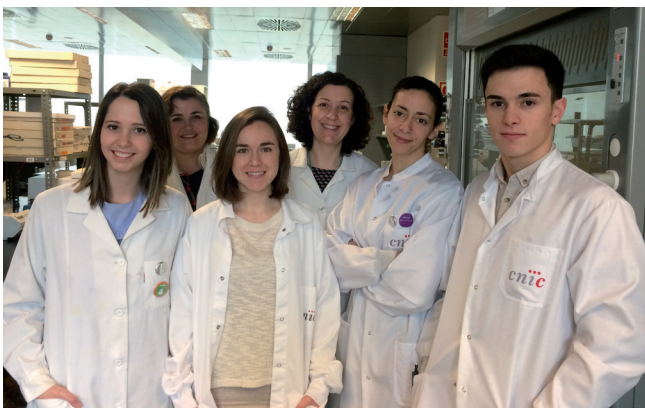
The collaboration agreement between the CNIC and its technological partner Philips gives the Center access to the most advanced cardiovascular imaging technology across the spectrum from ultrasound, through hybrid equipment and CAT scans, to MRI. Through this agreement, the aim is to achieve advances in the prevention, diagnosis, and treatment of cardiovascular disease, using technology that Philips continuously updates as

technological advances are made. This partnership has produced the Philips-CNIC VF-3DESSOS joint patent for cardiac MRI. MRI is the best technique for observing heart function and anatomy, but it is a technically complicated procedure with examination times of over 30 minutes. The new Philips-CNIC VF-3DESSOS process shortens scan times to under 1 minute, a milestone in cardiac imaging.



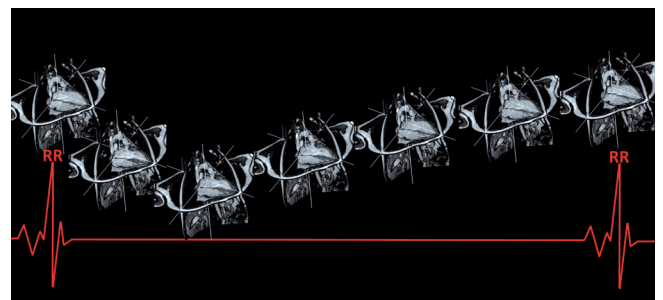
Myocarditis biomarker

Over more than 10 years of work, Pilar Martín Fernández's group has discovered, validated, and now patented a biomarker for the diagnosis of acute myocarditis. Negotiations are underway for the joint development and licensing of the CNIC patent to a venture capital company for the development of a biosensor able to detect the biomarker in patient blood samples in only 30 minutes. This technology promises to be an essential clinical tool for the differential diagnosis of acute myocarditis and MI; these conditions often have a similar presentation and it can be very difficult to distinguish between them. Initial results with the biosensor are positive.



Treatment and diagnosis of thoracic aortic aneurysm (TAA)

Juan Miguel Redondo's group has discovered a method for the prevention or treatment of thoracic aortic aneurysm (TAA). The treatment involves blockade of a newly identified target of the nitric oxide (NO)-metalloproteinase pathway. The discovery also provides an *in vitro* method in which specific biomarkers are used to identify patients at risk of developing TAA. This method involves measuring the expression pattern or level of specific NO-metalloproteinase-pathway components and substrates. The patent also refers to screening methods for identifying compounds useful for TAA treatment, prevention, or inhibition. These new methods are applicable to many diseases: (i) bicuspid aortic valve disease; (ii) syndromic TAAs, such as Marfan syndrome (MFS), vascular Ehlers Danlos, Loeys Dietz Syndrome (Types 1 and 2), and Familial TAA and dissection (familial TAAD); (iii) nonsyndromic TAA; or (iv) any other disease associated with an aortopathy triggered by the metalloproteinase deficiency described in the invention. These findings represent a substantial advance in the understanding of the pathogenesis and molecular mediators underlying aortic diseases.



CNIC study findings inform clinical practice guidelines

The European Society of Cardiology (ESC) publishes concise documents on specific cardiovascular conditions that summarize treatment recommendations based on the latest robust clinical research evidence. These clinical practice guidelines have a massive international impact, since they are used to guide therapy implementation. Two studies undertaken at the CNIC have been included in recent ESC clinical practice guidelines. The *FOCUS trial*, testing the *Fuster Polypill* for treatment adherence in secondary prevention, is featured in the *2016 European Guidelines on Cardiovascular Disease Prevention in Clinical Practice*, while the *METOCARD-CNIC trial*, testing the infarct-limiting effect of early i.v. metoprolol in patients having a heart attack, is included in the *2017 ESC Guidelines for the Management of Acute Myocardial Infarction in Patients Presenting with ST-segment Elevation*. The 2016 prevention guidelines also cite the PESA study, and the 2017 ESC MI guidelines cite a total of eight CNIC studies.

CNIC investigators participate in 2017 ESC clinical practice guidelines

CNIC researchers made important contributions to two ESC clinical practice guidelines released in 2017. CNIC Clinical Research Director Borja Ibáñez served as Chairman on the ESC task force for the 2017 ESC MI guidelines, while Hector Bueno served as a member on the same task force as well as the task force for the *2017 Focused update on Dual Antiplatelet Therapy (DAPT)*.



Members of the ESC Task Force for the 2017 ESC Guidelines for the Management of Acute Myocardial Infarction in Patients Presenting with ST-segment Elevation at the CNIC entrance during the task-force kick-off meeting.