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CNIC NEWS AND VIEWS

1 - GRANTS

CNIC AWARDED SEVERO OCHOA CENTRE OF EXCELLENCE ACCREDITATION

Severo Ochoa Center of Excellence accreditation provides funds of €1 million per year over four years. The CNIC has once again been awarded this prestigious accreditation by the Spanish Ministry of Science and Innovation. The CNIC was first recognized as a Severo Ochoa Center of Excellence in 2011. The aim of the award is to fund and acknowledge public research centers and units that advance their field, show international scientific leadership, and collaborate widely in their social and business environment. The award is given to organizations that run highly competitive, groundbreaking programs that are among the finest in the world in their fields of endeavor.



In addition to the core funding, Severo Ochoa Center of Excellence accreditation allows priority access to other research development initiatives.

PROJECTS STARTING IN 2021

In 2021, 62 CNIC projects started with national competitive funding, representing a total amount of €12.9 million. A further 10 international projects began last year, with funding coming mainly through European Union calls (Horizon 2020) and totalling €7.1 million: 2 ERC CoG projects and the CNIC-

led H2020-RESILIENCE project / clinical trial *Remote Ischemic Conditioning in Lymphoma Patients Receiving Anthracyclines*. RESILIENCE will receive €6 million over 5 years, of which the CNIC will receive €1.7 million.

Selected CNIC international projects

Funding Body	Grant code	Amount Granted	Acronym	Title	Start date of project
EC-European Commission	SC1-BHC-08-2020	53.957,00 €	RITA ME 2	Rituximab in patients with acute myocardial infarction: a phase 2 placebo-controlled randomised clinical trial	01/06/2021
EC-European Commission	SC1-BHC-06-2020	801.000,00 €	MAESTRIA	Machine learning artificial intelligence early detection stroke atrial fibrillation	01/03/2021
EC-European Research Council	H2020-ERC-2020-COG	2.000.000,00 €	ProtMechanics-Live	Uncovering Protein Mechanics in Physiology and Disease	01/06/2021
EC-European Research Council	H2020-ERC-2020-COG	1.998.500,00 €	AngioUnrestUHD	Understanding and modulating vascular arrest with ultra-high definition	01/03/2021
EC-European Commission	SC1-BHC-08-2020	1.725.938,00 €	RESILIENCE	Remote Ischemic Conditioning in Lymphoma Patients Receiving Anthracyclines	01/06/2021

A CNIC PROJECT RECEIVES FUNDING FROM THE LA CAIXA FOUNDATION TO INVESTIGATE A TYPE OF FATAL TACHYCARDIA

The La Caixa Foundation awarded funding to the project 'Relation between triadin loss and cardiac proteostasis in catecholaminergic polymorphic ventricular tachycardia type 5', which is coordinated by Dr Silvia Priori, leader of the CNIC Molecular Cardiology group, cardiologist at the Istituti Clinici Scientifici Maugeri de Pavia, and Professor at the University of Pavia (Italy). This three year project was selected in the fourth CaixaResearch Health Call and will receive funding of €496 100."



YOUNG POSTDOCTORAL WOMEN'S PROJECTS

Gillian Dunphy and **Dieke Van Dinther**, in Dr. David Sancho's group, started two new Marie Skłodowska Curie projects (H2020-MSCAIF). The projects, titled 'STING signaling modulation via the electron transport chain' (Dunphy) and 'Functional relevance of mitochondrial supercomplex assembly in myeloid cells' (Van Dinther) were awarded €160,932 and €172,932, respectively.

Marta Cortés Canteli, in Dr. Valentin Fuster's group, started a new project on the 'Preclinical connection between cardiovascular disease and Alzheimer's disease' (AD) that was awarded a **BBVA Foundation 2021 Leonardo Grant** for Researchers and Cultural Creators.



This project, which will receive €40,000, will determine the blood concentrations of plasma biomarkers of AD— particularly the phosphorylated tau-181 protein—in asymptomatic middle-aged individuals with cerebral hypometabolism and subclinical atherosclerosis. This information has the potential to show if these individuals are already in the initial stages of AD.

2-AWARDS AND HONORS

THE ASSOCIATION OF CARDIOVASCULAR IMAGING OF THE SPANISH SOCIETY OF CARDIOLOGY (SEC) AWARDS ITS GOLD MEDAL TO DR VALENTÍN FUSTER.

CNIC General Director Dr. Valentín Fuster was awarded the Gold Medal of the Association of Cardiovascular Imaging of the Spanish Society of Cardiology (SEC) for his original and innovative use of cardiovascular imaging to expand understanding of the health of the heart and brain. Dr Luis Jesús Jiménez Borreguero, President of the SEC Association of Cardiovascular Imaging, "Dr Fuster has promoted major studies in this field, such as the High-Risk Plaque Initiative and the Progression of Early Subclinical Atherosclerosis study, an original, pioneering project in the use of noninvasive imaging techniques to improve the estimation of cardiovascular disease progression before the onset of symptoms."



PURA MUÑOZ-CÁNOVES RECEIVES THE NATIONAL SANTIAGO RAMÓN Y CAJAL AWARD

The Ministry of Science and Innovation awarded the Santiago Ramón y Cajal National Prize in the area of Biology to Dr. Pura Muñoz-Cánoves for her scientific contributions in the field of tissue regeneration. Dr. Muñoz-Cánoves is Professor of Cell Biology in the Department of Experimental and Health Sciences at *Universitat Pompeu Fabra* in Barcelona, Research Professor at the *Institució Catalana de Recerca i Estudis Avançats* (ICREA), and a group leader at the CNIC and the Spanish Neurodegenerative Diseases Research Network (CIBERNED).

Created in 1982, the Santiago Ramón y Cajal awards are Spain's most important recognition of scientific research. They recognize the achievements of Spanish researchers carrying out outstanding, internationally recognized research in their respective scientific fields, making exceptional contributions to the advancement of science, improved knowledge of human beings and their coexistence, the transfer of technology, and the progress of humankind. The total



PREMIOS NACIONALES DE INVESTIGACIÓN 2021

Modalidad "Santiago Ramón y Cajal" en el área de Biología

Purificación Muñoz Cánoves



amount of the awards is €300,000, with €30,000 destined to each award winner.

Dr. Pura Muñoz joins two previous winners of the same award at the CNIC, Dr. Francisco Sánchez Madrid, in 2020, and Dr. Valentín Fuster, in 2019.

BORJA IBÁÑEZ WINS THE FUNDACIÓN JESÚS SERRA RESEARCH AWARD FOR HIS WORK IN THE FIELDS OF NUTRITION AND FOOD SCIENCE

Dr. Borja Ibáñez, Scientific Director at the CNIC and an interventional cardiologist at the *Fundación Jiménez Díaz*, is one of the winners of the third edition of the Fundación Jesús Serra Research Awards. This initiative of the *Fundación Jesús Serra*, part of the *Catalana Occidente* group, is aimed at scientists younger than 45 who specialize in nutrition and diet.

Dr. Borja Ibáñez was awarded the prize for his clinical research on "Nutritional approaches to the prevention of cardiotoxicity associated with cancer treatments", which focuses on the development of new treatments to reduce the prevalence of chronic heart failure in cancer survivors.



Award winners receive €35,000, and the goal of the awards is to incentivize research into nutrition and food science, an area with a fundamental influence on health. Innumerable research studies show that appropriate lifestyle and dietary habits can prevent or mitigate the impact of diseases such as ischemic heart disease, hypercholesterolemia, diabetes, cancer, and obesity.

GUADALUPE SABIO AWARDED THE BANCO SABADELL FOUNDATION PRIZE FOR BIOMEDICAL RESEARCH

The *Banco Sabadell* Foundation awarded its Biomedical Research Prize to CNIC researcher Dr. Guadalupe Sabio Buzo for her research into how obesity causes cardiometabolic disease.

Dr. Sabio Buzo heads a team researching the roles of stress-activated protein kinases in the development and progression of cardiovascular disease, diabetes, and cancer. The group's work focuses on understanding alterations observed in obese individuals that may trigger the onset of these diseases, such as changes in lipid profiles, dysregulation of internal body clocks, and cellular stress.

In addition to the *Banco Sabadell* prize, Dr Sabio's group received the Antoni Esteve Foundation Research Award for an article published in the journal *Nature* in 2019. The study revealed the involvement of the protein p38gamma in the development of hepatocellular carcinoma, the main type of primary liver cancer, which affects over a million people a year worldwide.

The international jury, which awards the Antoni Esteve Foundation Research Award every two years, considered the study to be the most important pharmacological publication by a Spanish author in 2019 and 2020.



ALMUDENA RAMIRO RECEIVES THE CAJA RURAL DE GRANADA FOUNDATION HEALTH SCIENCES AWARD

Dr. Almudena Ramiro received the XVII *Caja Rural* de Granada Health Sciences Award for her research into the treatment of atherosclerosis.

Vascular disease is the main cause of death in developed societies. Heart attack and ischemic stroke are both caused by a thrombus that forms and obstructs an artery, resulting in death of tissues starved of oxygen. A thrombus forms through atherosclerosis, a slow process that has a long asymptomatic phase. Scientists have long known that atherosclerosis involves a major contribution from the immune response, but details of this involvement have remained opaque.

Dr. Ramiro and her team approached this problem using highly innovative technology to study the antibody-encoding genes in the B lymphocytes of mice with atherosclerosis. The team catalogued 18 antibodies that identify atherosclerotic plaques. Closer analysis revealed that one of them, called A12, targets a molecule of the organism itself called ALDH4A1.



The award jury valued the quality of the data and the study's originality and clinical significance. Not only does the study identify a target structure for the altered immune response in atherosclerosis, but the A12 antibody has great potential for the development of innovative strategies to treat vascular diseases. This study was published in *Nature*.

JOSÉ ANTONIO ENRÍQUEZ AND ANDRÉS HIDALGO RECEIVE THE *CONSTANTES Y VITALES* AWARD FOR THE BEST BIOMEDICAL PUBLICATION OF THE YEAR

José Antonio Enríquez and Andrés Hidalgo were received the *Constantes y Vitales* award for the best biomedical publication of the year for their article "A Network of Macrophages Supports Mitochondrial Homeostasis in the Heart". The article, published in *Cell*, is the result of a joint project run by the CNIC groups led by Dr. Andrés Hidalgo and Dr. José Antonio Enríquez and presents the results of more than five years of research and collaborations with several laboratories in Europe, Asia, and the USA. The study shows that macrophages, a type of immune cell, help heart cells to eliminate their waste material, thus allowing the heart to maintain its metabolic and contractile capacity.



This discovery suggests that cardiac dysfunction may, in some cases, arise from defects in these resident immune cells rather than from defects in cardiomyocytes, an idea has important implications for the diagnosis and treatment of heart disease.

BORJA IBAÑEZ, AWARDED THE *ZENDAL-BALMIS* BLUE CROSS FOR HIS CONTRIBUTION TO THE FIGHT AGAINST THE COVID-19 PANDEMIC

Dr. Borja Ibañez received the *Zendal-Balmis* Blue Cross in the "Gold" category, awarded to individuals and institutions that have contributed to the fight against the major health crisis of the beginning of the 21st century, highlighting their commendable work, sacrifice, commitment, and dedication to this challenge.

The award highlights Dr. Ibañez's research work since the beginning of the pandemic and his team's discovery of beneficial effects of metoprolol in patients with severe Covid-19.

In this study carried out by researchers from the CNIC and the *Instituto de Investigación Sanitaria de la Fundación Jiménez Díaz* (IIS-FJD), metoprolol, a safe and cheap beta-blocker traditionally used to treat cardiovascular disease, improved the outcomes of



critically ill patients with Covid-19. The study was published in the *Journal of American College of Cardiology*.

The team found that metoprolol, due to its highly selective effect on hyperactivated neutrophils under acute stress conditions such as myocardial infarction, could be repurposed as a treatment for severe Covid-19.

JORGE ALEGRE-CEBOLLADA RECEIVES THE *MICHÈLE AUGER* AWARD FROM IUPAB



Dr. Jorge Alegre-Cebollada received the *Michèle Auger* Prize from the International Union for Pure and Applied Biophysics (IUPAB), through its scientific journal *Biophysical Reviews*. The award recognizes the research of young scientists working in the field of biophysics who, at the time of application, are younger than 40 years old.

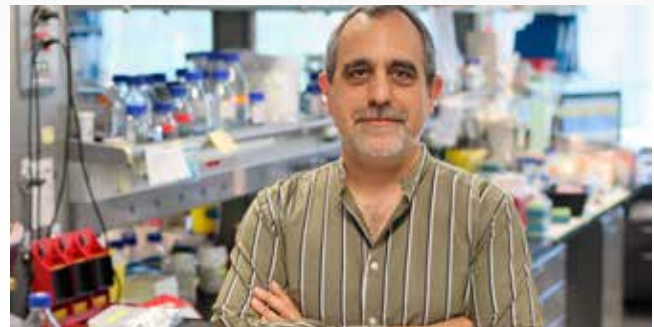
The award was launched in 2019 to honor the memory of Professor Michèle Auger, a much loved and respected member of the *Biophysical Reviews* Editorial Board, who passed away in 2018. Dr. Alegre-Cebollada, who heads the Laboratory of Molecular Mechanics of the Cardiovascular System at the CNIC, conducts research aimed at elucidating the nanomechanical principles that govern protein structure, function, and regulation.

Dr. Alegre-Cebollada's studies, which address both the effects of mechanical forces on protein structure and the mechanisms through which these forces are transduced into biological function, represent a significant advance in the field of protein research.

JOSÉ ANTONIO ENRÍQUEZ AND MIGUEL ÁNGEL DEL POZO, NEW MEMBERS OF EMBO

The researchers José Antonio Enríquez and Miguel Ángel del Pozo were named members of the European Molecular Biology Organization (EMBO). Dr Enríquez and Dr del Pozo join their colleagues Miguel Torres, Pura Muñoz, and Francisco Sánchez Madrid, bringing the number of CNIC scientists who are also EMBO members to five.

EMBO members actively participate in the organization, sitting on the EMBO board, the various EMBO committees, and the editorial boards of EMBO Press journals. They also evaluate the applications of EMBO calls for funding and act as mentors for scientists who are just starting out on their professional careers. The new members were formally inducted at the EMBO members annual meeting, held on October 27–29, 2021.



JORGE ALEGRE, MEMBER OF THE ACADEMIA JOVEN DE ESPAÑA



Dr. Jorge Alegre Cebollada has been voted one of ten new members of the *Academia Joven de España*, an organization dedicated to representing young scientists and giving them greater visibility.

Academia Joven de España is linked to the Global Young Academy and the *Instituto de España* (the umbrella organization for Spanish Royal Academies and Institutes).

Dr. Alegre leads the CNIC Molecular Mechanics of the Cardiovascular System research group, which investigates how mechanical forces determine muscle function at molecular, cellular, tissue, and organismal levels.

One of the distinguishing characteristics of the *Academia Joven de España* is that permits full membership of young Spanish researchers working abroad. This measure was introduced to foster collaboration among young Spanish researchers and to connect those who are working outside the country with academic institutions in Spain.

MIGUEL TORRES APPOINTED ASSOCIATE EDITOR OF SCIENCE ADVANCES

The CNIC researcher Dr. Miguel Torres has been appointed Associate Editor of the prestigious scientific journal *Science Advances*. The journal is a peer-reviewed, open access, multidisciplinary scientific journal launched in early 2015 and published by the American Association for the Advancement of Science (AAA).



3- SCIENTIFIC EVENTS

CNIC INVITED SEMINARS AND WEBINARS

Ten seminars and webinars open to the scientific community were held in 2021. Highlights included presentations by: Akiko Iwasaki (Howard Hughes Medical Institute, Yale University School of Medicine, USA: Immune responses to SARS-CoV-2), Juan Domingo Gispert (Barcelonabeta Brain

Research Center, Spain: Can Alzheimer's Disease Be Prevented?), Eldad Tzahor (Weizmann Institute of Science, Israel: Novel Strategies for Heart Regeneration), and Karina Yaniv (Weizmann Institute of Science, Israel: Vascular control of organ growth and regeneration).

Fundación **prócnic** **cnic**

22 Mar 2021 16:00 h. CNIC Webinar
Immune responses to SARS-CoV-2

Teams Link: [Click here to join the meeting](#)

Akiko Iwasaki
Howard Hughes Medical Institute,
Yale University School of Medicine, USA

Chair:
Andrés Hidalgo

Fundación **prócnic** **cnic**

12 Jul 2021 12:00 h. CNIC Webinar
Vascular control of organ growth and regeneration

<https://www.cnic.es/es/actualidad/agenda/karina-yaniv-vascular-control-organ-growth-and-regeneration>

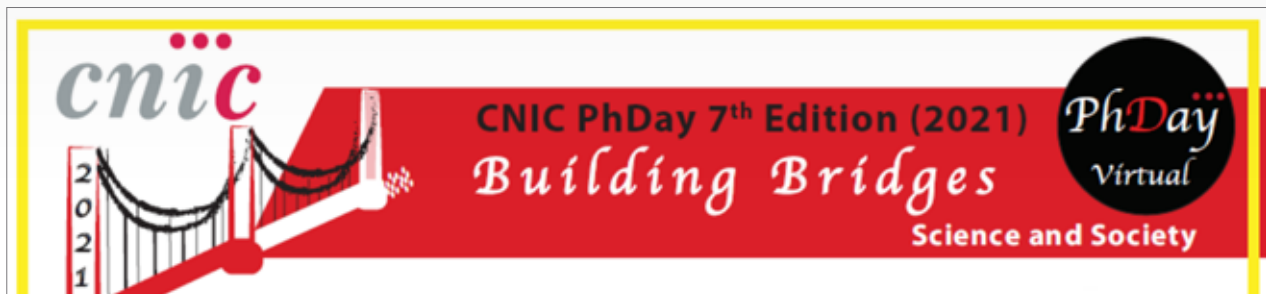
Karina Yaniv
Weizmann Institute of Science, Israel

Chair:
Miguel Torres



CNIC PHDAY

The 7th edition of **CNIC PhDay** was held online. The topic for 2021 was **Building Bridges, Science and Society**. The event was divided into two parts. The first consisted of two parallel sessions: knowledge transfer and science communication. Topics covered included the creation of science-based companies and the best ways to minimize distortion in the communication of scientific results. The second part focused on diversity in science, pseudoscience and pseudotherapies and how to deal with them. More than 140 people participated, about half of them from outside the CNIC and three-quarters of them PhD students.



4 - OUTREACH ACTIVITIES

CONFERENCE: BRAIN AND HEART. DR. VALENTÍN FUSTER, DIRECTOR GENERAL DEL CNIC - SEMANA DE LA CIENCIA 2021



The CNIC participated once again in Science and Innovation Week, which is held annually in the first half of November. In the Community of Madrid, this event is organized by the Madri+d Foundation for Knowledge. The goal is to bring science closer to the public, promote knowledge and interest, and involve members of the public in its development. The theme of this year's Science Week was 'Science for the great challenges of humanity'.

As part of the week, CNIC General Director Dr. Valentín Fuster organized the Heart and Brain online conference, which showcased recent research advances in an accessible and entertaining way, with a particular focus on heart and brain health.

CNIC AT THE RESEARCH FAIR OF THE EUROPEAN RESEARCH NIGHT WITH THE "LA CAIXA" FOUNDATION

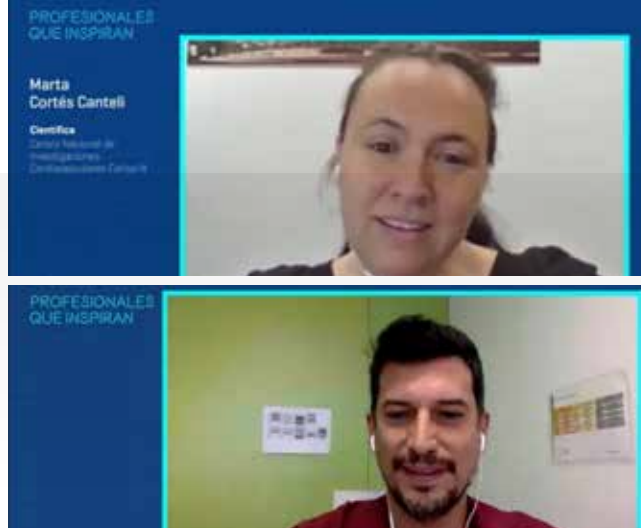
Participants took part in activities and live demonstrations illustrating the scientific research being carried out at research centers and universities in the area. The CNIC was the center with the highest level of participation.



CNIC PARTICIPATES IN THE “INSPIRING ENCOUNTERS WITH PROFESSIONALS” HIGH-SCHOOL OUTREACH EVENT

Sixty professionals from various fields talked about their professional experience with 6000 secondary students during an event promoted by the Bertelsmann Foundation and *Empieza Por Educar*. The “Inspiring encounters between professionals and students” encounter was aimed at the 100 educational centers participating in the Xcelence-Schools pilot project.

Researcher Marta Cortés Canteli and imaging technician Braulio Pérez represented the CNIC joining in the four day event, in which professionals from very varied academic backgrounds talked about their experience via Zoom and YouTube with 6000 high-school students in their fourth year of compulsory secondary education (15–16 year-olds) at schools in Madrid and Catalonia.



Videos of the event aimed at schools and students and their families can be seen at <https://www.empresasqueinspiran.es/>. This series of 60 short videos (10-12 minutes) presents a wide range of professions and academic fields, with the aim of inspiring students, arousing curiosity, broadening professional aspirations, and dismantling stereotypes.

5 - PARTNERSHIPS

VISITING RESEARCHERS PROGRAM WITH THE JESÚS SERRA FOUNDATION



The *Jesús Serra* Foundation, part of *Grupo Catalana Occidente*, is funding the scientific stay at the CNIC of Dr. Benedetta Izzi, from the IRCCS, Istituto Neurologico Mediterraneo Neuromed, Italy. Dr. Izzi began her visit at the end of the year as a *Fundacion Serra* Visiting Scientist in the group led by Dr. José Javier Fuster Ortuño, working on “Hematovascular Pathophysiology”. This fellowship is part of the *Jesús Serra* Foundation’s Visiting Researchers program, which aims to promote

interaction among researchers and in this way contribute to scientific advances. Started in 2009, the Visiting Researchers Program finances visits of several months to Spanish research centers by promising and internationally renowned scientists. The goals are to deepen the scientific relationship between the host research group and the visiting researcher’s center of origin and to start new lines of research based on shared scientific interests.

6-SOCIAL AND CNIC

CNIC NEW EQUALITY AGREEMENT 2021-2024

The CNIC Equality Agreement 2021-2024 was officially validated and successfully registered with the Community of Madrid. This agreement can be viewed on the CNIC’s transparency page: <https://www.cnic.es/en/transparencia>

NEW LACTATION ROOM

The new CNIC lactation room was inaugurated in 2020, days before the Covid-19 pandemic restrictions came into force, and is now available to all CNIC employees and visiting scientists. The CNIC lactation room is sponsored by Philips, which provided some of the equipment.



CNIC RESEARCHER JESÚS VICTORINO SANTOS, WINNER OF THE FAMELAB SCIENTIFIC MONOLOGUE CONTEST

CNIC researcher Jesús Victorino Santos will represent Spain in the international final of scientific monologues FameLab, after winning the national final, which was presided over by H.M. Queen Letizia.

The event was also attended by the Minister of Science and Innovation, Diana Morant, and the director of the British Council, Mark Howard.

Famelab is a scientific monologue contest that aims to bring scientific knowledge to the general public through a combination of rigor and entertainment. Jesús won thanks to the monologue “En clave de gen” (In the key of gene), a monologue in which he talked about genetics. The “letters” of



our DNA code have been known for 20 years, and yet we have not learned how to read it completely. Jesús explained approaches to deciphering our genetic code in the context of cardiovascular disease.