

Press release

Daniel Bravo Andreu Private Foundation awards grants to researchers from Hospital Clínic, IQS and SDJ Research Institute for stays in Canada and USA

Pedro Luis Cepas, Francesc Canalejo and Estefanía Martínez-Barrios to launch cutting-edge research in cardiology at the Quebec Heart and Lung Institute, the Massachusetts Institute of Technology and Mayo Clinic.



Sant Just Desvern (Barcelona), 17 May 2023 – The Daniel Bravo Andreu Private Foundation has awarded three grants for short stays abroad in biomedical research at international prestigious centres to **Dr Pedro Luis Cepas** of Hospital Clínic Barcelona, **Francesc Canalejo** of the IQS School of Engineering (Ramon Llull University) and **Estefanía Martínez-Barrios** of the Sant Joan de Déu Research Institute.

Improving treatment of Atrial Fibrillation

Dr Pedro Luis Cepas specialises in cardiology at Hospital Clínic Barcelona and is a researcher at the Atherosclerosis, coronary disease and heart failure Group, along with his mentor, **Dr Xavier Freixa**. Dr Freixa is currently a consultant and specialist in structural intervention at Clínic.

Cepas has selected a nine-month stay at the Quebec Heart and Lung Institute (IUCPQ), Canada's top cardiology centre, to study the *Multiparametric*

optimisation of the left atrial appendage closure procedure in patients with atrial fibrillation. His mentor will be **Dr Josep Rodés**, one of the world's foremost cardiologists and one of the most commonly cited in research.

The aim of the project is to find out whether a better selection of patients with atrial fibrillation can make treatment through a left atrial appendage closure safer and more efficient.

Atrial fibrillation is the most common type of arrhythmia. It generates an irregular heart rate and causes blood clots, which can detach, leading to a stroke. The main preventive treatment is the use of anticoagulants, however many patients are unable to take these due to a risk of haemorrhaging. An alternative is a left atrial appendage occlusion, a procedure that occludes the bottom of the cavity (atrial appendage) where the clots form. As a result of an ageing population, more and more patients will have to undergo this procedure.

"Despite the progress this treatment implies, a lot of questions remain unanswered. We must understand more about which patients benefit most from the procedure, the possible complications and how to manage these to improve safety and efficiency" explains Dr Xavier Freixa.

"The **Daniel Bravo Grant is a unique opportunity for my future** and the future of my research group as it is now possible for us to connect with a global benchmark like the IUCPQ and lead our research in a more innovative and productive direction" says Cepas.

New stent for aortic coarctation in children

The industrial engineer Francesc Canalejo, PhD student at the IQS School of Engineering (Ramon Llull University) in Barcelona and joint researcher of the Vascular Engineering and Applied Biomedicine Group, led by **Dr Jordi Martorell**, and the Industrial Products Engineering Group, coordinated by **Dr Andrés García**, will join the Massachusetts Institute of Technology (MIT) for nine months.

Canalejo's research focuses on the development of polymeric stents for children affected by aortic coarctation. The Daniel Bravo Grant will promote the Polycoarct project at the laboratory of **Dr Mercedes Balcells** at the MIT Institute of Medical Engineering & Science.

The aim is to design a new polymeric stent adapted to the somatic growth of children with aortic coarctation that can be reabsorbed after use, reducing the need for frequent intervention.



Aortic coarctation is a narrowing of the aorta, and generally manifests at birth. It is estimated to account for 5% of all congenital heart defects, and can be diagnosed in children and adults.

Aortic coarctation can be treated with surgery, angioplasty or by implanting a stent. Implantation of a stent may lead to several complications, including device migration, arterial embolisation, clogged blood vessels and aortic dissection. Long-term complications include additional procedures to extend the implant, stenosis, damage to the device and aortic aneurysm.

“MIT’s experience in areas like the biocompatibility of medical devices, the reendothelisation of blood vessels, cell culture and planning in vivo tests can help tackle the challenges we face in developing this innovative medical device for use in children” explains Dr Jordi Martorell.

“Dr Jordi Martorell and Dr Mercedes Balcells encouraged me to apply for the Daniel Bravo Grant for this stay at MIT, so I could access cutting-edge technology, collaborate with leading researchers in the design and analysis of medical devices and accelerate the development of my project” says Canalejo. On the other hand, the researcher admits that “this **predoctoral stay will be necessary in receiving an International Doctorate Mention**”.

New strategies in genetic diagnosis of sudden cardiac death in children

The third grant has been awarded to Estefanía Martínez-Barrios, PhD student on the Programme in Molecular Biology, Biomedicine and Health at the University of Girona and researcher from the Cardiovascular Diseases and Child Development research group from the San Joan de Déu Research Institute led by **Dr Georgia Sarquella-Brugada**.

Martínez will stay for nine months at Mayo Clinic in the US for the research project *Familial genetic diagnosis of malignant arrhythmias and sudden cardiac death in children*. His mentor will be **Dr Michael J. Ackerman**, director of Windland Smith Rice Sudden Death Genomics Laboratory at Mayo Clinic.

Currently, one of the main clinical handicaps in the field of cardiology is providing a conclusive genetic diagnosis to families who have suffered a case of sudden cardiac death in children in order to improve prevention.

“We are keen to form part of Dr Ackerman’s team as it has the most experience in this field and has discovered 12 genes associated with congenital heart disease and sudden cardiac death in children” explains Dr Georgia Sarquella-Brugada.

For Estefanía Martínez-Barrios, “it is a **great opportunity that will allow us to broaden our scientific and organisational view**. What’s more, Mayo Clinic

was a source of inspiration for creating our Arrhythmia and Familiar Cardiopathies Unit at the Sant Joan de Déu Barcelona Children's Hospital, currently one of the most important centres in Europe”.

Since 2013, the Daniel Bravo Andreu Private Foundation has supported scientific talent and promoted biomedical research with a high impact on academia, clinical practice and society in Catalonia through the Daniel Bravo Grants.

These grants allow researchers at public hospitals and research centres in Catalonia working in cardiology and non-invasive diagnostic techniques to do a three-to-nine month research stay, with a €3,000 stipend per month.

About the Daniel Bravo Andreu Private Foundation

The Daniel Bravo Andreu Private Foundation’s mission is to help contribute to building Patient-Centred Healthcare and aimed at supporting Biomedical Research in Catalonia.

Through the Daniel Bravo Grants, the Daniel Bravo Andreu Private Foundation has promoted initiatives to collaborate with hospitals and research entities like the new High Precision Diagnostic Centre at the Bellvitge University Hospital, which has the first PET/MRI scanner in Spain, the Hybrid Operating Room in Sant Pau Hospital, the Covid-19 research project with ISGlobal, the Advanced Cardiac Imaging Unit at the Hospital Universitari de Girona Doctor Josep Trueta, the Cystic Fibrosis Unit at the Vall d’Hebron University Hospital, the Advanced Cardiovascular Imaging Centre at Hospital Clínic Barcelona, the Centre for Rare Diseases Diagnosis and Research, as well as the Heart Area, both initiatives at Sant Joan de Déu Barcelona Children's Hospital, among others.

More information: fundaciodanielbravo.org

Media contact:

Gemma Escarré Comms
M +34 667 76 15 24
info@gemmaescarre.com