

1 FOREWORD AND CNIC MISSION

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The Centro Nacional de Investigaciones Cardiovasculares (CNIC) is a biomedical research center funded through a pioneering public-private partnership between the Spanish Government and the ProCNIC Foundation (composed of 12 Spanish companies unrelated to the biomedical sector). The CNIC also benefits from the external support of its Scientific Advisory Board, composed of leading international experts who provide guidance on strategy and regularly evaluate the performance of the Center and its group leaders.

Cardiovascular disease (CVD) is the principal cause of death worldwide. The exponential increase in costs of the treatment of CVD in its symptomatic phase is creating an unaffordable burden on individuals and health systems. The CNIC's mission is to improve cardiovascular (CV) health by advancing scientific knowledge and its effective transfer to clinical applications.

CNIC is organized to maximize collaboration between basic and clinical researchers and to encourage networking with hospitals. Thirty-one research groups (seven of which are led by clinicians) are distributed in three scientific areas: Myocardial Pathophysiology, Vascular Pathophysiology, and Cellular and Developmental Biology.

The CNIC is equipped with a state-of-the-art infrastructure that includes unrivalled advanced imaging technology recognized by the Spanish government as a national Unique Scientific and Technical Infrastructure (ICTS) and dedicated to the transmission and preservation of knowledge, technology transfer, and innovation.

At the end of 2020, the CNIC had a total staff in the Research Areas of 415 (64% women), with 106 predoctoral researchers and trainees (70% women). The CNIC is among the Spanish centers with the highest training capacity. Training at the CNIC is structured into 12 programs, including dedicated programs for clinical CV researchers.

In response to the worldwide COVID-19 pandemic in 2020, the Center kept its research running by promoting teleworking and maintaining laboratory-based work in accordance with the preventive measures established by Spanish health authorities.

This report offers an overview of how the CNIC adapted to this situation and how its energetic team of dedicated scientists, clinicians, technicians, and support personnel is bringing the CNIC's mission to reality.

Major discoveries in 2020 include identifying a new origin of lymphatic vessels of the heart and of arteries, discovering new diagnostic and therapeutic targets for CVD and new functions of neutrophils, and the use of anticoagulants to potentially improve survival among hospitalized COVID-19 patients.

The Center's ten large translational studies, including several randomized clinical trials, have already changed clinical practice worldwide. These studies bear testimony to the enthusiastic participation of researchers, healthy volunteers, patients, and emergency service personnel to defining the causes and risk factors of CVD. This commitment of citizens and professionals outside the research community is making essential contributions to advancing the use of noninvasive imaging technology for diagnosis and research.

Through these endeavors, the CNIC is making a comprehensive, across-the-board investment for societal benefit that integrates biomedical research into the wider society. This is fitting, since we are all stakeholders in our health and in the health of the next generation. As we move forward, the CNIC will maintain the drive and focus established in its initial phases and ensure that the Center's basic and clinical scientists continue to work closely together to devise innovative projects that help reduce the health and socioeconomic burden associated with CVD, and to train the researchers of the future.