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## **CNIC Conference brings together international experts in mechanobiology**

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*Mechanical forces are the major drivers of development, physiology, and diseases of the cardiovascular system*

On November 4 and 5 the *Centro Nacional de Investigaciones Cardiovasculares Carlos III* (CNIC) held the VI CNIC Conference, a key international event in the scientific calendar for researchers in the cardiovascular field. The recent meeting was organized by four CNIC researchers—Jorge Alegre-Cebollada, Nadia Mercader, María Montoya, and Miguel Á. del Pozo—together with Martin Schwartz from Yale University. The meeting, titled '[Mechanical forces in physiology and disease](#)', brought together international research leaders with expertise in very different areas of mechanobiology, including research technology, cell biology, animal models, human disease, and development.

We live in a gravitational field, and this simple fact ensures that mechanical forces have a profound influence on biological systems. Mechanical forces are the major drivers of development, physiology, and diseases of the cardiovascular system. Mechanical forces act on every biological level: molecules, cells, tissues, organs, and the whole organism. Development of blood vessels and the heart is determined by blood flow; defects in the contractile machinery induce myocardial remodeling that gives rise to cardiomyopathies; atherosclerosis is produced in arterial regions subject to blood-flow alterations; and hypertension and vessel-wall rigidity are the main risk factors for myocardial infarction and stroke.

#### Models

Among the many eminent speakers at the conference, some of the highlights were Lasker Award winner Mike Sheetz, a pioneer in the field and director of the Mechanobiology Institute in Singapore and professor at Columbia University; Valerie Weaver, professor and director at the Center for Bioengineering and Tissue Regeneration and codirector of the Bay Area Center for Physical Sciences and Oncology (UCSF); Jochen Guck, researcher at BIOTEC - Biotechnology Center TU Dresden (Germany); and Professor Julio M. Fernández, from Columbia University in New York.

The meeting was supported by the [Fundación Pro CNIC](#), [EMBO](#), [The Company of Biologists](#), the [Sociedad de Bioquímica y Biología Molecular Española](#) (SEBBM) and the [Sociedad de Biofísica de España](#) (SBE).

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