SCIENTIFIC SEMINAR

Guillermo Luxán

Goethe University Frankfurt

Regulation of Cardiac Biology by the Microvascular Microenvironment in Ageing and Disease

Age is a major risk for developing cardiovascular disorders such as atherosclerosis, aneurysms or cardiac valve disease. In fact, the majority of 80-year-old citizens suffer from cardiovascular disease. Among patients diagnosed with cardiac insufficiency, half of them are affected by heart failure with preserved ejection fraction (HFpEF). HFpEF is associated with high morbidity and mortality, underscoring the urgent need to understand its molecular and cellular mechanisms. Heart failure is well known to be associated with changes and functional impairment of the microvasculature. Additionally, as we age the extracellular matrix changes and that has consequences which are pivotal driving forces of HFpEF and cardiovascular disease. Previous studies have shown that fibrosis accumulates in the heart with age, with significant changes observed in mice starting at 15 months of age. Although the mechanical properties of the myocardium have been studied, the effects on the individual cardiac cells, particularly the microvasculature, have not been studied in detail. We aim to investigate the role of cardiac pericytes and the impact of mechanical stiffness on the microvasculature, with a particular emphasis on stiffness-induced angiocrine signaling and its influence on age- and disease-related phenotypes in the context of ageing and HFpEF.

CIC bioGUNE
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EXCELENCIA SEVERO OCHOA

Monday
September 22
Atrio 800
12.00H

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