RESEARCH TOPIC-MEM8
IMMUNE AND GENETIC MECHANISMS OF HEART FAILURE

Curriculum MEM Clinical

Clinical Unit name and address: Department of Cardiovascular Medicine, Humanitas Clinical and Research Center-IRCCS

Laboratory name: Molecular Cardiology, Humanitas University

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Abstract

Our group has been studying the molecular mechanisms of cardiovascular diseases, in particular heart failure and atherosclerosis. In our laboratory we try to approach the complexity of these diseases through an integrative approach aimed at understanding the genetics and epigenetics beneath the pathological processes. More recently, we started defining the relevance of immune mechanisms underlying cardiovascular diseases through single cell sequencing and FACS analysis approaches, focusing in particular on the interaction between the immune system cells and other parenchymal cells of the heart and in the arteries in disease. We plan to create a clinical database of human cardiovascular diseases integrated with human specimen correlates in order to translate information gathered from basic science studies. The role of the immune system and of genetics will be studied in human cardiovascular diseases

Main technical approaches
FACS analysis of immune cells; single cells genetic analysis through RNA sequencing and bioinformatics; human genetic technologies (HT-DNA sequencing and SNP analysis); deep clinical and imaging phenotyping; human biobanking and clinical data-base integration

Scientific references

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Type of contract

PhD scholarship awarded by Humanitas University of € 22.400 gross per year awarded by Humanitas University. This sum is exempt from IRPEF income tax according to the provisions of art. 4 of Law no. 476 of 13th August 1984, and is subject to social security contributions according to the provisions of art. 2, section 26 and subsequent sections, of Law no. 335 of 8th August 1995 and subsequent modifications.

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