



RESEARCH TOPIC MEM16

PANTHER: PersonAlized mediCiNe for primary cardiomyopaTHiEs: assessment of pRognostic, diagnostic and therapeutic value of iPSC-based models in a large cohort of patients with dilated cardiomyopathy.

Curriculum MEM Standard

Laboratory name:

Department of Cardiovascular Medicine - Stem Cells Lab (Humanitas Clinical and Research Center, BLD E – Pieve Emanuele)

Pre-clinical Supervisor:

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Abstract

The major goal of the project is to prove the clinical value of cardiac models generated through induced Pluripotent Stem Cell (iPSC) technology for their use in risk stratification, personalized prognosis and therapeutic response prediction in patients with cardiomyopathy (CMP).

CMPs represent a common cause of heart failure and the most frequent cause of heart transplantation, and their prevalence it's exponentially increasing. The project will focus on patients with dilated CMP (DCM), selected from the Heart Muscle Disease Registry of Trieste, and will particularly focus on those carrying mutations in the Titin (TTN) and Lamin A/C (LMNA) genes. We will assess the reliability of cardiomyocytes (CMs) from patient-specific iPSCs to reproduce their clinical data and their response to drugs using specific functional and molecular assays. The expected outcome is to validate the use of iPSC models as personalized prognostic/diagnostic tools and for setting personalized therapeutic regimen.

Main technical approaches

Cell culture basics (experience with iPSC will be considered a plus) and basic molecular biology techniques

Scientific references

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Type of contract

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