



A New Lecture Series Focused on Induced Pluripotent Stem Cells



Prof. Thomas Eschenhagen, MD

Institute of Experimental Pharmacology and Toxicology,
University Medical Center Hamburg Eppendorf, and
German Centre for Cardiovascular Research (DZHK), partner site Hamburg/Kiel/Lübeck



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DEUTSCHES ZENTRUM FÜR
HERZ-KREISLAUF-FORSCHUNG E.V.

BEATING HUMAN HEART MUSCLES IN THE DISH AS ADVANCED IN VITRO MODEL AND MATERIAL FOR CARDIAC REGENERATION

The availability of principally unlimited quantities of human cardiomyocytes from induced pluripotent stem cells (iPSC) provide unprecedented opportunities for drug screening, disease modeling and regenerative therapies. While principally straightforward, challenges remain in terms of the genetic instability of iPSC cultures over time, the immaturity and functional variability of human iPSC-derived cardiomyocytes, the limited robustness of assays evaluating their phenotype, and the translatability of iPSC-based cardiac repair. Some of these shortcomings may be overcome by providing hiPSC cardiomyocytes with a more physiological 3D growth environment. Indeed, cardiomyocytes cultured in an engineered heart tissue (EHT) format exhibit features of advanced structural, metabolic, electrophysiological and contractile maturation. Automation and miniaturization further enhance the usefulness of the EHT assay for preclinical drug development and human disease modeling. 3D Heart muscle patches could also solve the low retention rate of hiPSC cardiomyocytes when injected directly into injured hearts. The lecture will give an overview of the current state, remaining limitations and means to move the field forward.

**Don't miss the chance!
YOU COULD BE MENTIONED HERE!**

You are a young researcher and working with iPSC?
Do you would like to present your project?
Submit an abstract and CV to melanie.generali@uzh.ch

