Faculty Name:
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Lab:
Laboratory for Stem Cells and Tissue Engineering

Project Title:
Modeling genetic risk of drug-induced cardiac arrhythmias using engineered cardiac tissues

Description:
Drug-induced cardiac arrhythmias commonly cause drug restriction, withdrawal from the market, or even attrition during the development phase. However, current models for studying drug-induced arrhythmias do not fully recapitulate the arrhythmic phenomenon. We aim to develop an optically-based platform for studying emergent arrhythmogenic cardiac behaviors in mature cardiac tissue. Engineered cardiac tissues fabricated from healthy hiPSC-derived cardiomyocytes and primary cardiac fibroblasts will be cultured in bioreactors developed for electromechanical maturation of 3D cardiac tissues. After maturation, tissues will be treated with pro-arrhythmic drugs with defined high, medium, or low pro-arrhythmogenic risk. Tissues will be optically imaged using voltage-sensing optical dyes while electrically paced and evaluated for torsades-, tachycardic-, and bradycardic-like patterns.

Location of Research:
On-Site

# of hrs/week:
35

Department/Program:
Biomedical Engineering

Eligibility:
MS

To apply, please contact:
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