



SFB1425 - Heterocellular Nature of Cardiac Lesions: Identities, Interactions, Implications

P17: PhD-Project

based at the

Institute for Experimental Cardiovascular Medicine

Steering Atrial Lesion Electrophysiology by Targeting Non-Myocytes

Background

Atrial ablation lines – lesions placed in the heart to interrupt aberrant excitation waves – become electrically transparent with time in the majority of patients. The cellular mechanisms of this electrical reconnection are insufficiently explored, and may include passive electrical conduction through electrically non-excitable cells. This project intends to identify and apply new interventions to maximise the electrical insulation provided by post-ablation lesions, while minimising their spatial extent.

Project Description

The project will be implemented with three major aims: (i) characterise the contribution of different cell populations to the electrophysiology of three clinically relevant atrial lesion types; (ii) target excitability and electrical connectivity for different cell types to alter trans-scar conduction; (iii) translate insight gained in transgenic model systems to clinically applicable interventions. Research will involve cell and tissue electrophysiology, imaging, genetic targeting, pharmacological interventions and computational modelling.

Qualifications and Requirements

- Demonstrable ability to conduct project-research to completion
- Solid background in cardiac and/or electro-physiology
- Hands-on experience in handling of biological models
- Familiarity with biophysical techniques and/or computational modelling would be desirable
- Excellent MSc or equivalent in a field relevant for the study
- English language proficiency at level B2 or higher

Research Areas

Biophysics, Electrophysiology

Experimental Tasks

- *in vitro*, *in vivo* and *in silico* experimental research
- electrophysiological characterisation of different cell types
- development and use of novel gene delivery methods

Student Background

Biophysics, Biology, (Molecular) Medicine, Biomedical Engineering

Starting Date

from 01/07-2020

PhD Advisor

Peter Kohl, Institute for Experimental Cardiovascular Medicine, University of Freiburg

peter.kohl@universitaets-herzzentrum.de

Contact

info@sfb1425.uni-freiburg.de

Applications via

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