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

P09: PhD-Project

based at the

Department of Cardiology and Angiology I

Cross-Talk Between the Heart and the Haematopoietic Niche in Post-Myocardial Infarction Lesion Remodelling

Background

Inflammation is essential for wound healing and tissue remodelling after acute or chronic myocardial injury. While inflammation is a pre-requisite for wound healing, excessive or prolonged inflammatory activity has been associated with increased scarring, cardiac dilation and loss of cardiac function. Demand for inflammatory leukocytes after injury increases haematopoietic stem cell (HSC) activity in the bone marrow (BM). Upon activation, quiescent HSC enter the cell cycle to increase the production of downstream progeny. Whether the haematopoietic emergency response after MI resolves completely and returns to homeostasis, or whether a pro-inflammatory footprint remains in the haematopoietic system, is currently unknown. In this project we aim to profile the hematopoietic innate immune response after MI to identify its epigenetic and transcriptional regulation and its effect on cardiac lesion remodeling.

Project tasks

Transcriptional and epigenetic profiling of innate immune cells from various sources (bone marrow, spleen, blood, heart) after MI. Therapeutic modulation of the hematopoietic response to improve cardiac lesion remodelling after MI.

Qualifications and Requirements

- High motivation to work on a cutting edge research topic in a highly interdisciplinary and supportive environment
- Solid background in immunobiology
- Prior experience in the handling of biological models, as well as in cellular (FACS, IHC) and molecular (qPCR, RNAseq) techniques would be desirable
- Excellent MSc in a field relevant for the proposed study
- English language proficiency at level B2 or higher

Research Areas

Myocardial infarction, Inflammation, Immunobiology

Experimental Tasks

- Characterisation of innate immune cells after MI
- Assessment of cardiac cardiac function and remodeling

Student Background

Biology, (Molecular) Medicine

Starting Date

from 01/07-2020

PhD Advisor

Timo Heidt, Department of Cardiology and Angiology I, University of Freiburg
timo.heidt@universitaets-herzzentrum.de
Joint project with Nina Cabezas-Wallscheid, MPI-IE

Contact

info@sfb1425.uni-freiburg.de

Applications via

SGBM portal
Submission window: 08-30/06-2020

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