Title: Myocardial reperfusion injury in pigs (over)expressing endothelial cell protective human genes

Summary: Patients suffering from acute myocardial infarction loose part of their myocardial muscle due to ischemia/reperfusion (I/R) injury occurring in the context of balloon catheter intervention. This means that part of the affected tissue, which was vital before the catheter intervention, dies due to reperfusion injury. This leads to decreased cardiac output and affects the patients' quality of life. Protection against myocardial I/R injury would therefore be a promising strategy to reduce the myocardial damage after successful treatment of an acute myocardial infarction. Our laboratory is currently developing new therapies to prevent reperfusion injury and performs basic research to improve the understanding of the pathophysiology of this disease. Transgenic pigs, expressing human genes, provide a great opportunity to study myocardial I/R injury and we have been using them in experimental acute myocardial infarction. In this module we will study the effect of (over) expression of human CD46, a membrane-bound complement regulatory protein, and/or human thrombomodulin, an anticoagulant membrane protein expressed on endothelial cells, on myocardial I/R injury. The students will work hand-in-hand with a Post-doc to perform immunofluorescence analyses of tissue and bio-plex analysis of plasma samples from porcine acute myocardial infarction experiments.

Requirements: Students selecting this module should be interested in translational biomedical research. Some background knowledge on complement, coagulation and the endothelium are a plus. The students will get a thorough introduction into state-of-the-art immunofluorescence analysis as well as testing of activation markers of innate immunity in general. The students will not be actively involved in animal experiments.

Time-slots & # of students:

Elective module series I :	1-2 students
Elective module series II:	1-2 students

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