

Title: ENDOTHELIAL CELL PROTECTION IN XENOTRANSPLANTATION AND ISCHEMIA / REPERFUSION INJURY: ASSESSMENT OF THE EFFECT OF MULTIPLE TRANSGENES AND THE PATHOPHYSIOLOGICAL ROLE OF THE PLASMA CASCADE SYSTEMS

Summary: In this project we try to better understand the mechanisms which lead to damage of organs and tissues either in xenotransplantation (pig organs to be used in humans) or when the blood supply to an tissue is interrupted for a certain time and then activated again, for example in myocardial infarction treated by a balloon catheter. We use in vitro cell culture experiments here and study activation of endothelial cells (the inner lining of blood vessels) mediated by the complement, coagulation and kinin systems. We also use animal models and we plan to do myocardial infarction experiments with transgenic pigs in spring 16. The MLS students would be allowed to be present while we perform these experiments in the experimental surgery laboratory at the Inselspital and they would learn different techniques used for cell culture and analysis of plasma, cells and tissue of the animals: ELISA, Bio-Plex, westernblot, and immunofluorescence.

Requirements: Students selecting this module should be interested in research, which covers transplantation, immunology, pharmacology and vascular biology. Our research is performed in close collaboration with clinical partners and we use methods ranging from molecular analyses of inflammation markers to animal experiments.

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