

Stasis- induced endothelial activation and thromboinflammation: implications for atrial fibrillation and deep vein thrombosis

1 PhD project offered starting on 01.10.2026

Scientific background

Thromboembolism remains a leading cause of death worldwide. Atrial fibrillation (AF) markedly increases the risk of cardioembolic stroke and systemic embolism, while deep vein thrombosis (DVT) can progress to pulmonary embolism. Despite their distinct clinical manifestations, AF- and DVT-associated thrombosis share a central pathogenic trigger: local blood stasis. Blood stasis induces local and systemic thromboinflammatory shifts, including reprogramming of endothelial cells (ECs), thereby promoting thrombus formation. However, the molecular and cellular mechanisms driving these stasis-induced EC phenotypes - particularly within the left atrial appendage (LAA), the predominant site of thrombus formation in AF, and in venous stasis - remain poorly understood.

PhD project

We are recruiting a motivated PhD candidate to join an exciting project, which will employ state-of-the-art methodologies to dissect the cellular and molecular mechanisms by which endothelial cells activation in response to blood-induced stasis promotes thrombus formation. In this project and based on our preliminary transcriptomic data, we will mechanistically test novel endothelial candidate mediators and how they drive thromboinflammation. To do so, we are planning to use number of *in vitro*, *in vivo* and *ex vivo* approaches, including experimental animal models of AF and venous thrombosis.

Publications relevant to the project

Zifkos K, Bochenek ML, Gogiraju R, Robert S, Pedrosa D, Kiouptsi K, Moiko K, Wagner M, Mahfoud F, Poncelet P, Münzel T, Ruf W, Reinhardt C, Panicot-Dubois L, Dubois C, Schäfer K. (2024). **Endothelial PTP1B deletion promotes VWF exocytosis and venous thromboinflammation.** *Circ Res*. doi: 10.1161/CIRCRESAHA.124.324214

Bochenek ML, Leidinger C, Rosinus NS, Gogiraju R, Guth S, Hobohm L, Jurk K, Mayer E, Münzel T, Lankeit M, Bosmann M, Konstantinides S, Schäfer K. **Activated endothelial TGFβ1 signaling promotes venous thrombus non-resolution in mice via endothelin-1: potential role for chronic thromboembolic pulmonary hypertension.** *Circ Res* (2019) doi: 10.1161/CIRCRESAHA.119.315259

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