



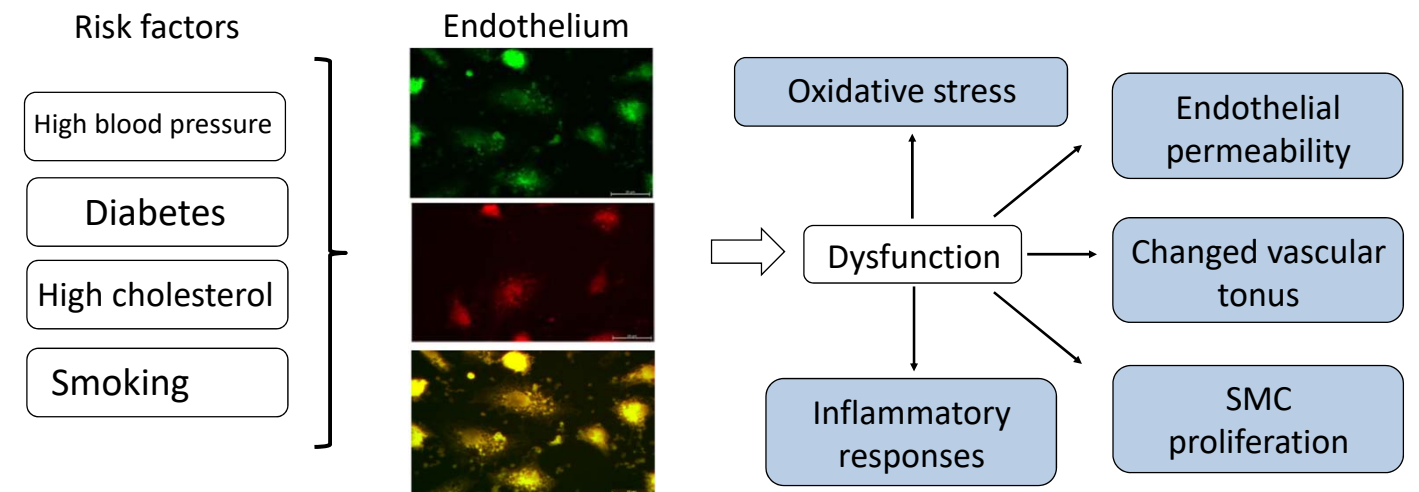
Pulmonary and Cardiovascular Pharmacology

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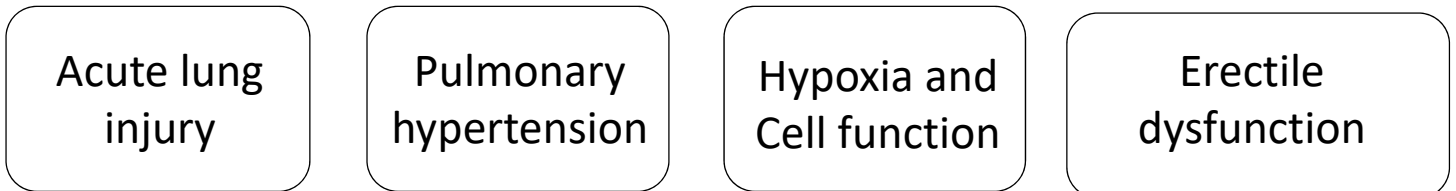
Department of Biomedicine

Background

The research group aims to develop novel pharmacological approaches to **improve endothelial function** in cardiovascular disease. Endothelial cell function and signal transduction is investigated under normal and pathophysiological conditions both in collaboration with basic science as well as clinical departments.



Current projects



Techniques used in the lab

Effect of drugs on cultured vascular cells

Primary endothelial cells and vascular smooth muscle cells are isolated and cultured to elucidate molecular mechanisms underlying effects of drugs. Techniques include qPCR, immunoblotting, activity assays, fluorescence microscopy etc.

Drug administration and In vivo measurements in rodent models

Right ventricular pressure and systemic blood pressure are measured by use of Millar catheters and DSI telemetric pressure transducers for rats and mice including transgenic animals, additionally for erectile function measurements. Eco- and electro-cardiography to measure heart function. Use of Flexivent equipment lung function is evaluated in rats and mice with pulmonary disease.

Effect of drugs on function and structure of mouse, rat and human small arteries

Measurements of contractility, membrane potential, cytoplasmic ion concentrations, protein and genetic expression, protein phosphorylation, morphological measurements.

Relevant papers

1. Engholm M. Involvement of transglutaminase 2 and K channels in cystamine vasodilatation in rat mesenteric small arteries. Br J Pharmacol. 2016;173:839-55.
2. Simonsen, U., Wandall-Frostholm, C., Oliván-Viguera, A. & Köhler, R. Emerging roles of calcium-activated K channels and TRPV4 channels in lung oedema and pulmonary circulatory collapse. Acta Physiol. 219, 176–187 (2017).
3. Comerma-Steffensen, S. et al. Down-regulation of KCa2.3 channels causes erectile dysfunction in mice. Sci. Rep. 7, 1–12 (2017).