

COLLOQUIA IN PHYSIOLOGY AND VASCULAR BIOLOGY

Venue: Medical University Vienna, Center for Physiology and Pharmacology,

Institute of Physiology, SchwarzschanierstraÙe 17, 1090 Vienna,

"Big Lecture Hall Physiology"

(Johannes Schmid, Tel.: (01) 40160 31155, johannes.schmid@meduniwien.ac.at,

Friday 28.10.2016 15:00 s.t.

Lars Maegdefessel (host: J. Schmid)

Molecular Vascular Medicine
Karolinska Institute
Center for Molecular Medicine L8:03
SE-171 77 Stockholm

"Non-coding RNAs in vascular disease detection and therapy"

Lars Maegdefessel (lars.maegdefessel@ki.se)

Abstract:

Non-coding RNAs have been identified as essential maintaining factors in cardiovascular homeostasis. Our work aims at the development of novel diagnostic and therapeutic strategies using microRNAs and long non-coding RNAs (lncRNAs), in particular 'natural antisense transcripts' (NATs), to limit the burden of vascular diseases, such as abdominal aortic aneurysms as well as carotid stenosis and subsequent stroke. Using transcriptomic-profiling techniques on human diseased tissue samples, we have identified several miRNAs and NATs as novel crucial regulators of smooth muscle cell survival via targeting distinct growth factors, as well as tumor suppressor and cell cycle regulatory genes in the vascular system. We are using disease relevant experimental *in vivo* models (rodents and LDLR-/- mini-pigs) to functionally assess how their modulation influences aneurysm progression and atherosclerotic plaque vulnerability. One focus of our studies is to utilize local delivery mechanisms for non-coding RNA modulators, such as drug eluting balloons and stents, to enhance the translational feasibility of our findings. Furthermore, we have access to unique human plasma material from patients with early and advanced forms of aneurysm disease, enabling us to investigate the biomarker value of non-coding RNAs in recognizing patients with acutely ruptured aneurysms, as well as predicting the future risk of rupture.