Inflammatory actions of chemokines and extracellular versicles in pathological tissue remodeling

Propositions for the thesis

”Inflammatory actions of chemokines and extracellular vesicles in pathological tissue remodeling”

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1. The primary function of CXCL4L1 expressed by VSMCs is to maintain vascular homeostasis and to avoid endothelial cell proliferation and aberrant angiogenesis. (This thesis)

2. Vascular smooth muscle cells are the most abundant cell type in the arterial vessel wall and are pivotal in maintaining vessel structure and function and can be affected by platelet-derived chemokines and extracellular vesicles (EVs) during the development of atherosclerosis. (This thesis)

3. In endothelial celss both CCL5 and CXCL4 are transported to the nucleus through cytoskeletal associations where they accumulate and are involved in transcriptional processes. (This thesis)

4. Excessive fatty acid accumulation in hepatocytes induce release of EVs that can transfer signals to hepatic stellate cells leading to fibrogenic processes during metabolic-associated fatty liver disease (MAFLD). (This thesis)

5. Even though both mature proteins are highly homologous, CXCL4L1 is distinct from CXCL4, especially with relation to their ability to vascular wall remodelling in atherosclerosis. (This thesis and von Hundelshausen et al., Sci Transl Med 2017)

6. Platelets are inflammatory cells.

7. The three factors of Virchow's triad: 1/ intravascular vessel wall damage (endothelial dysfunction), 2/ hemodynamic changes (interrupted blood flow), and 3/ the alterations in the constitution of the blood (i.e. coagulation factors) lead to thrombosis – a major complication of CVD.

8. Platelet-derived chemokines can provide valuable directions for the development of novel anti-chemokine drugs for CVD or cancer therapy.

9. Cardiovascular disease (CVD) is one of the main causes of death worldwide and despite extensive research is best prevented by maintaining the healthy lifestyle.

10. ‘A man is as old as his arteries’ Thomas Sydenham (1624–1689).