

Research project student Pathology UMCG

Titel	Perivascular adipose tissue (PVAT) as target to attenuate vascular calcification in patients with diabetes and chronic kidney disease.
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Abstract (vraagstelling en achtergrond)	<p><u>Background:</u> Chronic kidney disease (CKD) and diabetes mellitus are associated with increased cardiovascular risk, including vascular calcification. Vascular smooth muscle cells (SMCs) play a pivotal role in the calcification process and undergo dedifferentiation into an osteogenic phenotype in response to pro-calcifying signals. As yet, no adequate interventions are available that target vascular calcification. Perivascular adipose tissue (PVAT) surrounds blood vessels and seems to play an important role in vascular physiology. In response to stimulatory signals PVAT may undergo structural, cellular and functional changes (e.g. acquisition pro-inflammatory state) and may promote the development of vascular disease. The PVAT phenotype in CKD and diabetes, and its association with vascular calcification is unknown.</p> <p><u>Goal:</u> In this project you will address the hypothesis that PVAT in CKD and diabetes has a pro-inflammatory phenotype and consequently promotes vascular calcification.</p> <p><u>Approach:</u> PVAT obtained from different patient groups will be characterized on the cellular and functional level using morphological-, gene-, and protein profiling, and related to vascular morphology. To study effects of the PVAT secretome on SMC calcification, you will participate in the development and validation of an <i>ex vivo</i> PVAT culture system to produce conditioned medium for further analyses.</p> <p><u>Outcome:</u> this challenging project will reveal the role of PVAT-derived factors in the development of vascular calcification.</p> <p>For this project we are looking for an ambitious student who is interested in translational research. This project is embedded in a recently started MD-PhD project with collaborators from different UMCG disciplines (Pathology, Surgery, Vascular Medicine, Nuclear Medicine).</p>
Study objective(s)	Characterization of perivascular adipose tissue (PVAT) in patients with diabetes and chronic kidney disease.
Periode	2020 and further