

Role of vascular remodeling in atherosclerosis and aortic aneurysm

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Propositions belonging to the thesis entitled

Role of Vascular Remodeling in Atherosclerosis and Aortic Aneurysm

Vascular calcification as a hallmark of increased vascular smooth muscle cell oxidative stress

By Ploingarm Petsophonsakul

1. Vascular smooth muscle cells (VSMCs) isolated from aneurysm tissue exhibit a distinct phenotype, associated with inflammation, calcification and senescence, from VSMCs isolated from healthy tissue of the same individual. (this thesis)
2. VSMC phenotypic switching and extracellular vesicle release contribute to microcalcification-driven aortic aneurysm formation. (this thesis)
3. Nicotine induces vascular calcification through the calcium-dependent Nox5 in VSMC. (this thesis)
4. Vitamin K reduces nicotine-induced VSMC oxidative stress and thereby vascular calcification. (this thesis)
5. Vitamin K-dependent processes are involved in the inhibition of calcification. Therefore, vitamin K is a potential treatment option for the inhibition of aortic aneurysm formation. (Valorisation of this thesis)
6. Smoking is the strongest modifiable life-style risk factor for development of aneurysm. (Kent et al. *Journal of Vascular Surgery* 2010)
7. Current management of aneurysm relies exclusively on surgical repair in order to prevent rupture. Better knowledge of basic mechanisms underlying aortic aneurysm will open up novel avenues for intervention and disease management. (Wassef et al. *Journal of Vascular Surgery* 2007)
8. Vascular calcification is involved in both atherosclerosis and aortic aneurysm. Early detection of microcalcification may help to hold disease progression. (Joshi et al. *The Lancet* 2014, Forsythe et al. *Journal of the American College of Cardiology* 2018)
9. Try not to become a man of success. Rather become a man of value (Albert Einstein)
10. Instead of worrying about what you cannot control, shift your energy to what you can create. (Roy T. Bennett)
11. Life becomes easier and more beautiful when we can see the good in other people (Roy T. Bennett)