

# Table of content

I	Original publications within this habilitation theses	p. 4
II	List of abbreviations	p. 6
1	Introduction	p. 7
1.1	Atherosclerosis as main cause of cardiovascular diseases	p. 7
1.2	Chemokines in inflammation and atherosclerosis	p. 9
1.2.1	CCL2-CCR2 axis	p. 9
1.2.2	CCL5-CCR5/CCR1 axis	p. 10
1.2.3	CCL12-CXCR4/ACKR3 axis	p. 11
1.3	Adipose tissue as diver of atherosclerosis	p. 13
1.3.1	Chemokines and AT lipid accumulation and inflammation	p. 14
1.3.2	The calcium-sensing receptor and AT lipid accumulation and inflammation	p. 15
1.4	MicroRNA-26b as regulator of platelet adhesion and thrombosis	p. 16
1.5	AMI as clinical outcome of atherosclerosis development	p. 18
1.6	PCSK9 as novel therapeutic approach	p. 20
2	Aims of this habilitation thesis	p. 22
3	Results	p. 24
3.1	Reference I: CXCL12 derived from endothelial cells promotes atherosclerosis to drive coronary artery disease.	p. 24
3.2	Reference II: B-cell specific CXCR4 protects against atherosclerosis development and increases plasma IgM levels.	p. 25
3.3	Reference III: Endothelial ACKR3 drives atherosclerosis by promoting immune cell adhesion to vascular endothelium.	p. 26
3.4	Reference IV: Adipocyte-specific ACKR3 regulates lipid levels in adipose tissue.	p. 27
3.5	Reference V: Adipocyte calcium sensing receptor is not involved in visceral adipose tissue inflammation or atherosclerosis development in hyperlipidemic Apoe <sup>-/-</sup> mice.	p. 28
3.6	Reference VI: MicroRNA-26b attenuates platelet adhesion and aggregation in mice.	p. 29
3.7	Reference VII: CCR6 deficiency increases infarct size after murine acute myocardial infarction.	p. 30
3.8	Reference VIII: PCSK9 imperceptibly affects chemokine receptor expression <i>in-vitro</i> and <i>in-vivo</i> .	p. 31

<b>4</b>	<b>Discussion</b>	<b>p. 32</b>
<b>4.1</b>	<b>Novel cell-type specific insights into the role of chemokines and chemokine receptors in atherosclerosis and myocardial infarction</b>	<b>p. 32</b>
<b>4.1.1</b>	<b>Chemokine(receptor)s in atherosclerosis</b>	<b>p. 32</b>
<b>4.1.2</b>	<b>Chemokine(receptor)s in atherosclerosis-related pathologies</b>	<b>p. 35</b>
<b>4.1.3</b>	<b>Clinical implications for chemokine(receptor)s</b>	<b>p. 37</b>
<b>4.2</b>	<b>CaSR a novel modulator of inflammation and cardiovascular health</b>	<b>p. 38</b>
<b>4.3</b>	<b>MiR-26b as key player in platelet adhesion and aggregation</b>	<b>p. 39</b>
<b>4.4</b>	<b>Exploring the interaction between PCSK9 and chemokine receptors</b>	<b>p. 40</b>
<b>4.5</b>	<b>General conclusion and perspectives</b>	<b>p. 42</b>
<b>5</b>	<b>Summary</b>	<b>p. 45</b>
<b>6</b>	<b>References</b>	<b>p. 47</b>
<b>III</b>	<b>Original publications used for this habilitation thesis</b>	<b>p. 64</b>
<b>III.1</b>	<b>Reference I</b>	<b>p. 64</b>
<b>III.2</b>	<b>Reference II</b>	<b>p. 69</b>
<b>III.3</b>	<b>Reference III</b>	<b>p. 71</b>
<b>III.4</b>	<b>Reference IV</b>	<b>p. 93</b>
<b>III.5</b>	<b>Reference V</b>	<b>p. 106</b>
<b>III.6</b>	<b>Reference VI</b>	<b>p. 117</b>
<b>III.7</b>	<b>Reference VII</b>	<b>p. 132</b>
<b>III.8</b>	<b>Reference VIII</b>	<b>p. 143</b>
<b>IV</b>	<b>Acknowledgement</b>	<b>p. 160</b>
<b>V</b>	<b>Curriculum Vitae</b>	<b>p. 161</b>
<b>VI</b>	<b>Publication list</b>	<b>p. 165</b>