ABC-transporters and Lipid Transfer Proteins: Important Players in Macrophage Cholesterol Homeostasis and Atherosclerosis

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Cardiovascular diseases (CVD), such as ischemic heart diseases (incl. acute myocardial infarction) and cerebrovascular diseases (incl. stroke), are currently the leading cause of death and illness in developed countries, and is expected to become the pre-eminent health problem worldwide. The major contributor to the growing burden of CVD is atherosclerosis, a progressive disease characterized by a focal accumulation of lipids and fibrous elements within the large arteries. Atherosclerosis has been related to hyperlipidemia with increased very low density lipoprotein/low density lipoprotein (VLDL/LDL)-cholesterol and triglyceride levels, often accompanied by low high density lipoprotein (HDL)-cholesterol levels. Macrophages have essential functions in all phases of atherosclerosis, from fatty streaks to complicated atherosclerotic plaques. As described in this thesis, systemic regulation of lipoprotein metabolism and local modulation of macrophage cholesterol metabolism in the arterial wall are both attractive targets for future drug design for the prevention of atherosclerosis.