

# CHARACTERIZATION OF THE LYMPHATIC VASCULATURE IN ATHEROSCLEROSIS

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Lymphatic vessels are present in the arterial wall, but the physiological and pathophysiological role of these vessels is not fully understood. Recently it has been shown that lymphatic vessels participate in reverse cholesterol transport, suggesting a possible role in the development of atherosclerosis.

To visualize lymphatic vessels in the arterial wall, we used lymphatic reporter animals. In parallel, *Ldlr*<sup>-/-</sup> and *ApoE*<sup>-/-</sup> mice on control or high-fat diet were used to characterize the lymphatic morphology and growth in atherosclerosis with paraffin-based histology and different stainings.

We demonstrated the presence of several lymphatic vessels in different parts of the aorta, less vessels in the aortic arch. Both *Ldlr*<sup>-/-</sup> and *ApoE*<sup>-/-</sup> mice developed severe atherosclerosis on a high-fat diet, indicating the largest atherosclerotic plaques in the aortic arch. Atherosclerotic mice showed a dynamic change in the morphology of lymphatic vessels in the adventitia of the arterial wall.

Our results suggest the possible role of the lymphatic vasculature in atherosclerosis. In current experiments we are using genetic loss-of-function and gain-of-function approaches to block and stimulate lymphatic growth in atherosclerotic mice. Defining the role of the lymphatic system in the pathogenesis of atherosclerosis may lead to the development of novel therapeutic approaches in the future.