

P010 Phage-display *in vivo* biopanning for the identification of phage-antibodies targeting atherosclerotic lesion surfaces
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Atherosclerosis is a major contributor to the pathogenesis of myocardial and cerebral artery thrombosis and results in intima injury. The aim of our study was to interrogate by *in vivo* biopanning the lesions developed in this inflammatory disease with a large human phage-antibody library for the discovery of unknown markers. *In vivo* biopanning has been used to identify human antibodies that home to diseased regions developed in the vessel wall of an atherosclerotic rabbit model. In order to keep the rounds of selection to a minimum, we have designed a subtractive selection approach based on a two-filter colony screening realized with proteins extracted from lesions of an atherosclerotic rabbit model and aorta of a normal diet rabbit. This strategy allowed for a rapid isolation of human monoclonal phage-displayed single-chain antibodies (MoPhabs) able to recognize atherosclerotic proteins after a single round of biopanning. Two MoPhabs were selected by colony screening and further characterized for their capacity to recognize atherosclerotic lesion endothelium of diseased aorta sections. These antibodies may have applications for gene delivery and for improving contrast agents for early atherosclerosis detection.