addition, most macrophages in the LSS-induced carotid artery lesions (vulnerable phenotype) expressed iNOS (p=0.006) and IRF5 (p=0.03) compared to OSS-modulated lesions (stable phenotype) while CD206 expression showed no differences.

Conclusions Ly-6Clo monocyte recruitment and M1 macrophages were significantly more prevalent in low shear stress-modulated plaques. These differences suggest low shear stress promotes monocyte recruitment and macrophage polarisation towards the pro-inflammatory M1 phenotype.

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181 M1 MACROPHAGES AND IRF5 EXACERBATE ATHEROSCLEROTIC DISEASE

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Introduction Atherosclerosis is an inflammatory disease that occurs in vascular sites subjected to complex blood flow, e.g. oscillatory (OSS) or low shear stress (LSS), the latter leading to the formation of a macrophage-rich plaque which is vulnerable to rupture and thrombotic events. Monocyte-derived macrophages can be conditioned towards a pro-inflammatory phenotype (M1) or a regulatory one (M2) and may determine atherosclerotic plaque outcome. Interferon Regulatory Factor 5 (IRF5) has been shown to be instrumental for M1 macrophage polarisation. We aimed to establish the occurrence of macrophage polarisation and the expression of IRF5 in murine atherosclerosis.

Methods A perivascular shear stress modifying cast was tied around a carotid artery, mimicking LSS and OSS in ApoE−/− mice fed a high fat diet. Homeostatic Ly-6Clo monocyte recruitment to the carotid artery was observed after labelling them in vivo with green fluorescent microspheres. We examined the expression of the macrophage polarisation markers CD206 (M2), iNOS and IRF5 (M1) in the cast-treated carotid artery by Immunohistochemistry and Confocal Immunolocalisation.

Results Labelled Ly-6Clo monocytes were more prevalent in the upstream half of LSS-modulated plaques (p=0.0006) in comparison to the downstream half and OSS-modulated lesions. These monocytes co-localised with the expression of iNOS not CD206. In