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Anti-GPCR antibodies in atherosclerosis

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Cardiovascular diseases, including coronary artery disease (CAD), are considered as killer number one worldwide. The pathology of CAD is caused by atherosclerosis, an inflammatory and immunological disorder. CXCL12 has been reported to be associated with CAD by genome-wide association studies (GWAS) and thus the CXCL12 / CXCR4 axis is determinant in atherosclerosis. CXCR4 belongs to the G proteins-coupled receptors (GPCR), which modulate different cellular functions. Although GPCRs are well established to function in immunity and inflammation, a little is known about their exact role in atherosclerosis. Recent studies pinpointed their therapeutic potential for atherosclerosis and CAD, however strong pre-clinical experimental evidence is still missing to understand whether targeting each of those molecules is protective or detrimental for atherosclerosis.

Here we will provide a short update on the so far published data with regard to the potential implication of both receptors CXCR3 and 4 as well their ligands CXCL9-12 in the context of atherosclerosis. Recently a high anti-CXCR3/4 antibodies in patients with systemic sclerosis (SSc) along with other GPCRs was reported. An attempt to treat atherogenic mice with IgGs from systemic sclerosis (SSc) patients and healthy controls (HC) is in progress. Some of the so far generated preliminary results will be presented and discussed. This update will help us to further extend our better understanding on targeting GPCRs in the context of atherosclerosis.