编号：YY001-20190930001

标题：Vaccination against atherosclerosis: An overview

简介：Atherosclerosis, an inflammatory disorder involving innate and adaptive immune responses both atheroprotective and proatherogenic, is a life wasting, and economic demanding disorder continuing to be the leading cause of morbidity and mortality worldwide. Thus the need for a long-lasting and highly effective treatment has made researchers to find new strategies. Many efforts conducted to reduce the burden of the disease have been toward the modification of cardiovascular risk factors up to now.

Vaccination against atherosclerosis has being investigated as a promising strategy to overcome the disorder. Several kinds of vaccination methods have been investigated mostly in mice, showed promising results in attenuation of atherosclerosis, inflammation, and lipid concentration. Finding proper antigens and adjuvants are the most conflicting parts of this strategy. Some antigens have been utilized include OxLDL, apoB100, CETP, PCSK9, HSP60, MHC-II-derived peptides, and interleukins. DNA-based vaccination method has opened a new window in this field. There is an increasing necessity for developing an effective, low-price, long-lasting, accessible, and convenient vaccination method. There are gaps of evidence like the selection of proper human sampling to test the vaccines, rout of delivery, safety, strength, scheduling, and determining side effects that all must be considered in clinical trials in the future.

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编号：YY001-20190930002

标题：Atherosclerosis and immunity: A perspective

简介：Atherosclerosis is an inflammatory and multifaceted disorder resulting from the accumulation of lipid droplets and several types of immune cells, including macrophages, T and B lymphocytes in the arterial walls. A wide variety of macrophage subtypes with different functions is implicated in the development and progression of atherosclerotic lesions. The prevalence of specific macrophage subtypes, which is influenced by cytokines, mediators, and substances composing atherosclerotic lesions, has been suggested to be an appropriate indicator of transition from a stable to an unstable plaque phenotype. Thus, a better understanding of the mechanisms underlying the differentiation of macrophage subpopulations in relation to the plaque phenotype would help to develop novel approaches aiming at slowing-down the progression of atherosclerotic disease by modulating the polarization of these cells. In addition, many arms of the adaptative immune system, which are regulated by different subtypes of T and B lymphocytes, are involved in atherosclerosis progression and there is an increasing effort to identify immune-modulating therapies targeting either T or B cells with a potential anti-atherosclerotic impact. This paper summarizes the pathophysiology of atherosclerotic disease as it relates to the contribution from the immune system, reviewing the crucial role of macrophages, T and B lymphocytes.

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编号：YY001-20190930003

标题：Vaccination against atherosclerosis

简介：Atherosclerosis is a chronic inflammatory disease that causes most heart attacks and strokes, making it the biggest killer in the world. Although cholesterol-lowering drugs have dramatically reduced these major adverse cardiovascular events, there remains a high residual risk called inflammatory risk. Atherosclerosis has an autoimmune component that can be manipulated by immunologic approaches including vaccination. Vaccination is attractive, because it is antigen-specific, does not impair host defense, and provides long-term protection. Several candidate antigens for atherosclerosis vaccine development have been identified and have been shown to reduce atherosclerosis in animal models. In this review, we focus on two different types of atherosclerosis vaccines: antibody-inducing and regulatory T cell-inducing.
全文链接：http://pan.ckcest.cn/rcservice//doc?doc_id=42389

编号：YY001-20190930004
标题：CXC chemokine ligand 12 (CXCL12) in atherosclerosis: An underlying therapeutic target
简介：CXC chemokine ligand 12 (CXCL12) is a specific chemokine ligand and plays a significant role in cell chemotaxis. Upon binding to CXC chemokine receptor 4 (CXCR4) or CXCR7, CXCL12 can activate different signaling cascades to regulate cell proliferation, migration, and metabolism. CXCL12 exerts a pro-atherogenic action by aggravating multiple pathogenesis of atherogenesis, including dyslipidemia, inflammation, neointima hyperplasia, angiogenesis, and insulin resistance. Serum CXCL12 levels are also markedly increased in patients with atherosclerosis-associated disease. The present review focuses on recent advances in CXCL12 research in the pathogenesis of atherosclerosis together with its clinical values. This may provide insight into potential novel therapies for atherosclerosis.
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编号：YY001-20190930005
标题：Combating cellular senescence by sirtuins: Implications for atherosclerosis
简介：Cellular senescence is the permanent cell cycle arrest induced either by chronological ageing or extrinsic stimuli. Recent researches have identified cellular senescence as an important mechanism for atherosclerosis, which is the essential pathophysiological contributor to cardiovascular diseases (CVDs). The sirtuins are a family of cellular deacetylases with fundamental abilities to regulate cellular metabolism and a variety of physiological activities. Previous studies have revealed the anti-ageing functions of sirtuins as the longevity-associated proteins. These advances indicate the potential beneficial functions of sirtuins in atherosclerosis by affecting cellular senescence. Herein, we review the recent findings about sirtuins in regulating atherosclerotic cellular senescence, and discuss the possibility of activating sirtuins as a therapeutic strategy for combating atherosclerosis.
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