



Special Issue

Atherosclerosis and Related Diseases

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Special Issue Introduction

Atherosclerosis and atherosclerotic diseases remain the problem number one of current medicine and health care being the cause of myocardial infarction, stroke, sudden death, and other common causes of mortality and disability. Atherosclerotic diseases account for more than 50% of total mortality in industrialized societies. Atherosclerotic lesion development has a long asymptomatic phase. Therefore, in many cases first clinical manifestations of atherosclerosis appear when the lesion is already well developed causing significant narrowing of the vascular lumen. Current treatment of atherosclerosis is mainly symptomatic and does not affect the atherosclerotic lesion per se. Frequently, symptomatic therapy that improves the state of the patient even provokes further development of atherosclerosis. Unfortunately, direct anti-atherosclerotic therapy aimed at regression of atherosclerotic plaques remains to be developed. Such development should become a major goal of modern medicine and pharmaceutical industry, taking into account the burden and clinical significance of the disease.

The development of novel anti-atherosclerotic therapies is hindered by the lack of knowledge of the disease mechanisms and the absence of comprehensive concepts of the disease pathogenesis. Detailed studying of the disease mechanisms at molecular and cellular level using modern methods of analysis should attempt to solve this problem. Among the mechanisms to be studied at the first place, are lipid metabolism, innate immunity, chronic inflammation and cell differentiation. In addition to the traditional methods of morphology and biochemistry, the most advanced techniques of cellular and molecular biology should be applied. The results of these studies should contribute to the development of novel comprehensive concepts of the pathogenesis of atherosclerosis and to identification of novel pharmacological targets for direct anti-atherosclerotic therapy. During the recent years, in addition to the widely-accepted lipid concept of atherogenesis, new targets for anti-atherosclerotic therapy associated with innate immunity and inflammation were proposed.

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