Mediator of arterial smooth muscle cell LIM protein

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Technology description

Summary

MARKETS ADDRESSED:
Cardiovascular disease is the leading cause of death in the United States and other Western countries, responsible for twice as many deaths per year as cancer. In arteriosclerosis, a form of vascular disease, arterial walls become thickened and their internal diameters constrict. This constriction leads to increased blood pressure and reduced circulation. A severe form of arteriosclerosis is atherosclerosis, whose hallmark is the formation of plaques composed of lipid (especially low density lipoprotein or LDL) and cells that may completely block blood flow, causing stroke, heart attack or damage to other tissues due to loss of circulation.

Advantages

Issued patents claim DNA encoding the SmLIM polypeptide and/or promoter sequence, and the SmLIM polypeptide.
Cells commonly found in atherosclerotic plaques include macrophages, connective tissue cells and arterial smooth muscle cells. In response to arterial damage, arterial smooth muscle cells can revert to an undifferentiated form and proliferate, thereby contributing to plaque formation. This invention teaches that one mediator of arterial smooth muscle cell proliferation is the SmLIM protein, which is abundant in differentiated arterial smooth muscle cells but reduced in proliferating arterial smooth muscle cells. The ability to regulate SmLIM expression in order to inhibit or encourage proliferation of arterial smooth muscle cells may have substantial therapeutic benefits for atherosclerosis or other vascular disease. In addition, the SmLIM promoter may be used to express other proteins of therapeutic value in an arterial smooth muscle cell-specific manner.

Institution

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