Vaccines Targeting Apolipoprotein C3 (ApoC3)

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Technology description

A novel vaccine that targets apolipoprotein C3 (ApoC3), a molecule that is involved in the regulation of triglycerides.
Using virus-like particles (VPLs), researchers are able to elicit strong antibody responses against self-antigens, which are normally poorly immunogenic.

Background

Dyslipidemia is a leading risk factor for the development of cardiovascular disease, specifically coronary artery disease. A harmful, atherogenic lipid profile includes elevated serum levels of low-density lipoprotein cholesterol (LDL-C), low serum levels of high-density lipoprotein cholesterol (HDL-C) and elevated serum triglycerides (TG). LDL-C contains some of the most atherogenic molecules. Their role in the pathophysiology of cardiovascular disease is well understood and LDL-C are the therapeutic target of drugs, including HMG-CoA reductase inhibitors (statins). Although lowering LDL-C reduces cardiovascular risk, it does not completely eliminate it; up to 19% of those with therapeutically optimized LDL-C levels still go on to have cardiovascular issues. Improving levels of HDL has also been an important therapeutic goal as these molecules transport LDL from peripheral vessels to the liver and can, at higher levels, reduce LDL-C in the serum. More recently, numerous studies have found that high serum triglycerides (TGs) independently confer an increased risk of cardiovascular disease. While mean LDL-C levels have been decreasing in the US since 1976, mean triglyceride levels have been increasing. As rates of obesity, type 2 diabetes and other metabolic risk factors increase, it is of utmost importance for medical management of TGs in order to prevent cardiovascular disease.

Technology Description

Researchers at the University of New Mexico have developed a novel vaccine that targets apolipoprotein C3 (ApoC3), a molecule that is involved in the regulation of triglycerides. Using virus-like particles (VPLs), researchers are able to elicit strong antibody responses against self-antigens, which are normally poorly immunogenic.

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Application area

Elicits strong antibody responses against self-antigens
Potential to reduce the risk of cardiovascular disease
Vaccine for a patient having, or at risk of having, dyslipidemia

Institution

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