

# New discovery may lead to immunization against cardiovascular disease

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Low levels of naturally occurring antibodies may represent an increased risk of developing cardiovascular disease, particularly stroke in men. This discovery, published in the academic journal *Atherosclerosis*, has now led to attempts to develop an immunization against cardiovascular disease.

Atherosclerosis (hardening of the arteries) is an inflammatory disease in which the walls of the blood vessels are thickened and become less elastic. It can cause blood clots and other cardiovascular diseases. It is not known precisely what causes atherosclerosis, but the immune system probably plays an important role. Research scientists suspect that various oxidised forms of what is known as bad cholesterol, LDL (low-density lipoprotein), contribute to the development of the disease. A research team from Karolinska Institutet, in cooperation with Lund University, has now shown that a particular type of naturally occurring antibodies, anti-PC, which are targeted against the lipid portion of the LDL molecule, play an important role in the development of cardiovascular disease.

The findings show that individuals who have low levels of anti-PC are at increased risk of cardiovascular disease. The risk is particularly high in men who develop stroke, with an almost fourfold increase.

This newly discovered risk factor, low levels of anti-PC, is independent of previously known risk factors such as high blood pressure, high blood lipids, diabetes and smoking.

"Our findings suggest that anti-PC can be used as a complement to the traditional risk factors to improve diagnosis and treatment. In addition we are currently developing anti-PC as a vaccine for atherosclerosis and cardiovascular disease," says Professor Johan Frostegård, who directed the study.

The study is based on data from 349 people who at some time over a 12-year period have suffered a heart attack or stroke and 693 individuals without symptoms of cardiovascular disease. The research has been carried out under the EU consortium CVDIMMUNE, [www.cvdimmune.com/](http://www.cvdimmune.com/), which is led by Johan Frostegård at Karolinska Institutet.

Source: Karolinska Institutet

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