

# Natural Antibodies against phosphorylcholine in cardiovascular disease and Alzheimer's disease

<https://neurodegenerationresearch.eu/survey/natural-antibodies-against-phosphorylcholine-in-cardiovascular-disease-and-alzheimers-disease/>

## Title of project or programme

Natural Antibodies against phosphorylcholine in cardiovascular disease and Alzheimer's disease

## Principal Investigators of project/programme grant

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- Sweden

## Source of funding information

VINNOVA

## Total sum awarded (Euro)

560000

## Start date of award

01-07-2009

## Total duration of award in months

36

## The project/programme is most relevant to

- Alzheimer's disease and other dementias

## **Keywords**

atherosclerosis, natural antibodies, immunization, Alzheimer's disease, inflammation

## **Research abstract in English**

Chronic inflammatory diseases like atherosclerosis and its consequences cardiovascular disease (CVD) in the form of stroke and myocardial infarction are dominating health problems in the western world and increasingly in the developing countries. Also Alzheimer's disease has a relation to inflammation, and is another major health problem. We have demonstrated that oxidized phospholipids (oxPL) can be central underlying factors and that natural antibodies against specific lipid-moieties (especially phosphorylcholine, PC) on them are protection factors where low levels leads to raised risk for CVD. We have also demonstrated that a protein, Annexin A5, also can play an important role to inhibit oxPL, and inflammatory reactions in the arteries. We therefore propose a novel paradigm for chronic inflammatory diseases, where an underactivated natural immune defence against PC (and other oxPL epitopes), decrease the protection against oxPL. the purpose with the project is to clarify: which role do these antibodies play as novel diagnostic markers; which is the cause of the above mentioned immune deficiency state; how can the immune system cause these diseases. The goal is to develop novel immunological diagnostics and treatment against oxPL in the form of active immunisation and/or vaccination. We expect to demonstrate underlying mechanisms regulating natural antibodies against PC and other oxPL and how they exert their effects. Further, which role does oxPL and antibodies against them play for incidence and development of chronic inflammatory diseases including CVD, Alzheimer's disease and also rheumatic disease like SLE and RA. We expect to develop novel therapeutic principles for treatment of chronic inflammatory diseases by passive and/or active immunisation to raise antibody levels. Another major candidate is Annexin A5, which also interacts with these atherogenic oxPL.

## **Lay Summary**