

Blood lipid metabolites allow early identification of cardiovascular disease

December 11 2014

New circulating metabolites might allow early diagnosis of cardiovascular disease. A team of scientists from Uppsala University, Karolinska Institutet and Colorado State University have identified novel lipid-derived molecules associated with future coronary heart disease events. The study published in the journal *PLOS Genetics* has examined the metabolic profile of blood samples from more than 3,600 individuals that have been followed-up for up to 10 years.

Professor Erik Ingelsson and graduate student Andrea Ganna have used novel biochemical and bioinformatics approaches to identify small molecules that are the intermediate- or end-products of metabolism. This approach, called metabolomics, has identified two lipid metabolites, lysophosphatidylcholine and sphingomyelin that reduced the risk of developing [coronary heart disease](#) in three Swedish population studies. Another lipid metabolite, monoglyceride, was instead associated with increased risk of coronary [heart disease](#).

One of the strengths of this study was that all participants were profiled for both metabolites and genetic variants. Some of the metabolites showed strong association with genetic variants previously associated with coronary heart disease supporting a common underlying molecular mechanism. Another strength was that the results were replicated in studies with different follow-up time, blood partition, age and sex distribution, increasing the generalizability of the findings.

This study shows the advantages of integrating different -omics

technologies in large epidemiological studies. The blood lipid metabolites identified could be useful in prediction of future cardiovascular disease. In vivo experiments are ongoing to investigate the potential causal role of these metabolites in the development of [cardiovascular disease](#). If confirmed, these findings could also point to new therapeutic targets.

More information: *PLOS Genetics*,
www.plosgenetics.org/doi/pgen.1004801

Provided by Public Library of Science

Citation: Blood lipid metabolites allow early identification of cardiovascular disease (2014, December 11) retrieved 7 May 2024 from <https://medicalxpress.com/news/2014-12-blood-lipid-metabolites-early-identification.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.