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# REDUCING CARDIOVASCULAR DISEASE (CVD) RISK USING AGENTS WHICH ELEVATE PON1 ACTIVITY AND IMPROVE HDL QUALITY

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**Atherosclerosis is a chronic disease that is characterized by accumulation of lipids and oxidized lipids within the intima of the arterial wall. It is the usual cause of heart attacks, strokes, and peripheral vascular which all together called cardiovascular disease (CVD). Lowering low density lipoprotein (LDL) levels in the circulation using statins therapy has become an integral strategy to reduce CVD risk. However, statins reduce CVD event rates by has a central role in atherosclerosis inhibition due to its anti-atherogenic properties such as, reverse cholesterol transport (RCT), antioxidant, anti-inflammatory and endothelial function improvement. Epidemiological data, animal studies and clinical trials supports HDL as the next target to reduce CVD risk. However, some findings have called into question the hypothesis that pharmacological increase in HDL-cholesterol levels is necessarily promoting reduction of CVD events. Instead, recent studies indicate that the focus should be on improving HDL functions (HDL quality), which truly reflect its actual beneficial effects, rather than increasing HDL-C levels (HDL-C quantity). Our hypothesis is that natural agents with the potential to alter HDL proteomics and lipidomics can improve the atheroprotective effects and functions of HDL and may reduce CVD risk. In our laboratory a promising active compound from an ethanol–water (70:30%) extract of Nannochloropsis sp. Microalgae was isolated. The structure of the compound was determined to be lyso-DGTS lipid. Lyso-DGTS interacts with HDL proteins, enhances paraxonase 1 (PON1), protein that contribute to many of the atheroprotective effects of HDL and elevate many of the HDL activities such as, HDL mediated cholesterol efflux from macrophages, HDL ability to induce nitric oxide release from endothelial cells and HDL antioxidant and anti-inflammatory properties. Our findings suggest a beneficial effect of lyso-DGTS on improving HDL quality which may reduce atherosclerotic risk.**

## Biography

Soliman Khatib has completed his PhD from the Technion institute, Natural Science, Chemistry in 1996-2000. He has completed his BSC from Ben-Gurion University, Natural Science, Chemistry 1993-1995. Now he is a Researcher in the laboratory of oxidative stress, Migal-Galilee Research institute and a Senior Lecturer at Department of Biotechnology, Tel-Hai academic collage. His research focus on understanding the relationship between oxidative stress and diseases related to oxidative stress, identifying volatile organic compounds (VOCs) as early biomarkers for diseases related to oxidative stress; Isolation and identification of natural compounds for treating and preventing diseases related to oxidative stress such as, atherosclerosis, Parkinson and Alzheimer diseases. He has published more than 50 papers in reputed journals.

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