

Experimental report

03/03/2021

Proposal: 9-13-652

Council: 4/2016

Title: How does the ratio of good HDL to bad LDL cholesterol lipoproteins affect the interaction with model cell membranes?

Research area: Soft condensed matter

This proposal is a continuation of 9-13-609

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Samples: deuterated phospholipids
Silicon crystals
lipoproteins

Instrument	Requested days	Allocated days	From	To
D17	4	0		
FIGARO	4	2	23/11/2016	25/11/2016

Abstract:

Atherosclerosis and its consequent complications are the largest killers in the western world, with a death toll reaching 16.7 million deaths per year. Although many risk factors have been identified, it is well-known that various lipoprotein particles in the blood play an important role in the development and rupture of atherosclerotic plaques. Current best practise for diagnosis and further monitoring of the progress of atherosclerosis is measurement of the ratio of high (HDL) to low (LDL) density lipoproteins in the blood, with high proportions of HDL showing a protective effect on the body.

In this proposal, we aim to study the effect of varying the ratio of HDL to LDL on supported lipid bilayers, covering both the ideal ratio for a healthy human and that expected for patients presenting atherosclerotic plaques.

Data from this experiment was evaluated and suggests difference in the behavior for lipid exchange and lipoprotein adsorption depending on the HDL/LDL ratio, but more data was needed to complete a publication.