

# UC Irvine

## UC Irvine Previously Published Works

### Title

Interaction of rHDL particles with membranes containing cholesterol in different lipid packing.

### Permalink

<https://escholarship.org/uc/item/7wd425tw>

### Authors

Sanchez, Susana A  
Toro, Claudia  
Tricerri, Maria A  
[et al.](#)

### Publication Date

2007

### Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Susana A Sánchez, Claudia A Toro, M Alejandra Triccerri, Enrico Gratton, and German Gunther.  
**Interaction of rHDL particles with membranes containing cholesterol in different lipid packing.**

51st Annual Meeting of the Biophysical Society, Baltimore, Maryland, 2007.  
*Biophys J.* 2007; Suppl: 428a, 2052-Pos/B270.

#### Abstract

There is strong evidence that the first steps in cholesterol efflux involve the interaction of lipid poor discoidal high density lipoproteins (pre- $\beta$ -HDL) with the cellular plasma membrane initiating the reverse cholesterol transport (RCT) process, wherein excess cholesterol is transported to the liver for catabolism. It is possible that the accessibility of sterol molecules to HDL particles depends on their location on the membrane. The extent and direction of the net movement will depend on the ratio of efflux to influx and is determined by the properties of the acceptor (HDL or other) and donor (membrane). It has been proposed that factors reducing the packing density of lipid molecules would enhance the rate of cholesterol transfer.

Here we report the effect of lipid packing on the cholesterol accessibility to the HDL particles in the process of sterol removal. The technique utilized was LAURDAN generalized polarization (GP), in cuvette and in a two-photon microscope using as a membrane model system SUVs and GUVs respectively. We report data on (1) POPC plus 32%cholesterol, using a sucrose monoester of myristic acid,  $\beta$ -D-Fructofuranosyl-6-O-myristyl- $\alpha$ -D-Glucopyranoside (MMS) to change the properties of the membrane, (2) two raft-like mixtures (DOPC:DPPC:FC 1:1:1 and POP:SM:FC 6:1:1) and (3) erythrocytes. Results are discussed under the scope of the importance of lipid packing and phase separation in the ability of HDL particles to remove cholesterol from the bilayers.

Financial support: NIH RR03155 (E.G. and S.S.) and Fondecyt 1040573 (C.T and G. G.).