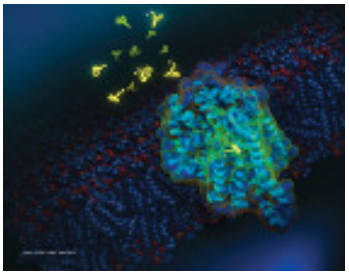

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Lipoproteins at model cell membranes: binding and lipid exchange

It is today clear that lipids are involved in many physiological functions that go beyond the traditional view of compartmentalisation of the cell and its organelles. The metabolism of lipids including cholesterol involves the production, in the liver, of lipid carrying particles known as lipoproteins. Lipoproteins are nano emulsion like particles composed of fats and proteins (named apolipoproteins). The complexity of lipoproteins is great, with different compositions not only in terms of the amounts of the fat and proteic components, but also on the specific protein type and isoform. Specific apolipoproteins are known to mark an increased risk for developing atherosclerosis where fat accumulation to form plaques occurs at the initial stages of this terrible disease. In this talk, I will present the efforts of my group to explore the role of lipid dynamics in their transport throughout the body by lipoproteins. We show the unique power of using small angle neutron scattering and neutron reflection as two complementary techniques to map the structural and compositional changes taken place at both lipoproteins and model membranes over time. Contrast matching and deuteration are key to highlight the different aspects of these complex natural nanoparticles.

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