Bilayers at the ILL

Contribution ID: **48** Type: **Poster**

Purification and characterization of perdeuterated lipid mixtures for building biomimetic membranes

Wednesday, 11 December 2019 18:38 (1 minute)

Deuteration is a useful strategy to modulate the visibility of specific components of the sample using neutron scattering techniques as it offers increased contrast with no significant impact on the physico-chemistry of the membrane. In this context, mass production of biologically relevant deuterated phospholipids of varying head groups and acyl chain compositions is currently the limiting factor in the full exploitation of such experiments. At the Partnership for Soft Condensed Matter (PSCM) in collaboration with ILL's D-lab, we have been investigating methods to biologically produce (*from Pichia pastoris and E.Coli*), further extract and separate the various phospholipid classes thus allowing us to recreate model membranes that could mimic specific cell organelles (*in a healthy or a diseased state*). Thus far, we have had success in being able to separate phospholipid classes that include phosphatidylcholine [dPC], phosphoethanolamine [dPE], phosphatidylserine [dPS], phosphatidylglycerol [dPG] and Cardiolipin [dCL] mixtures. Further, acyl chain compositional determination of such purified fractions was carried out by employing mass-spectrometric analyses. Ultimately, we aim to purify individual molecular species from such complex mixtures by employing reverse-phase chromatographic techniques. All such efforts allow access to well characterized pure deuterated phospholipids for use by the neutron community. Users will then be able to use these lipids to reconstruct model membranes that are more biologically relevant and offer increased contrast.

Primary authors: BATCHU, Krishna (Institut laue-langevin); Dr MARTEL, Anne (Institut laue-langevin); Dr GERELLI, Yuri (Institut laue-langevin); Mrs LAUX, Valerie (Institut laue-langevin); Dr JOUHET, Juliette (CEA); Dr HAERTLEIN, Michael (Institut laue-langevin); Dr FRAGNETO, Giovanna (Institut laue-langevin)

Presenter: CORUCCI, Giacomo (ILL)

Session Classification: Wine & cheese poster session