



	Experiment title: Structure and supramolecular organization of a new class of self-assembled polar headgroup substituted liposome DNA complexes for gene transfer	Experiment number: SC-2772
Beamline: ID02	Date of experiment: from: 11 December 2009 to: 14 December 2009	Date of report: 25 February 2016 <i>Received at ESRF:</i>
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Report:

The experimental results have been published in the paper

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“An X-ray diffraction study of complexes of DNA and lactosyl-functionalised liposomes induced by bivalent metal cations: coexistence of different symmetries”, *Liq. Cryst.*, 40:2, 137-148 (2013).

whose abstract is reported below

By using synchrotron X-ray diffraction we studied the structure and phase behaviour of complexes of DNA with the anionic 1,2-dioleoyl-sn-glycero-3-phosphoethanolamine-N-lactosyl (L-PE), mixed with zwitterionic lipids 1,2-dioleoyl-sn-glycero-3-phosphocholine (DOPC) or 1,2-dioleoyl-sn-glycero-3-phosphoethanolamine (DOPE), in aqueous solutions of Mn²⁺ and Ca²⁺. Aqueous dispersions of simple L-PE/DOPC and L-PE/DOPE in the presence and absence of metal cations were also studied. All the systems complexed in a self-assembled manner, the DNA condensation being promoted by the metal cations.. These complexes are organized in a variety of structures showing a number of symmetries,

sometimes coexisting, for example condensed multilamellar, L_{α}^c , inverted hexagonal, H_{II}^c , and cubic, $Pn3m$. Phase distribution depends on the molar ratios between L-PE and DOPC or DOPE, respectively.

