



**Experiment title: Structural role of the lipid component in multicomponent lipoplexes containing complexed and condensed DNA and in their dynamic interaction with model membranes**

**Experiment number:**

SC 3379

<b>Beamline:</b> ID02	<b>Date of experiment:</b> from: 20/06/2012 to: 22/06/2012	<b>Date of report:</b>  <i>Received at ESRF:</i>
<b>Shifts:</b> 6	<b>Local contact(s):</b> Narayanan Theyencheri	

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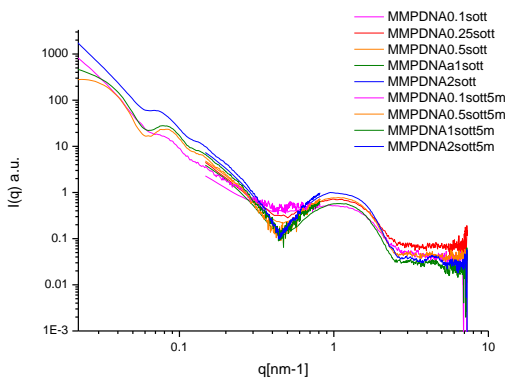
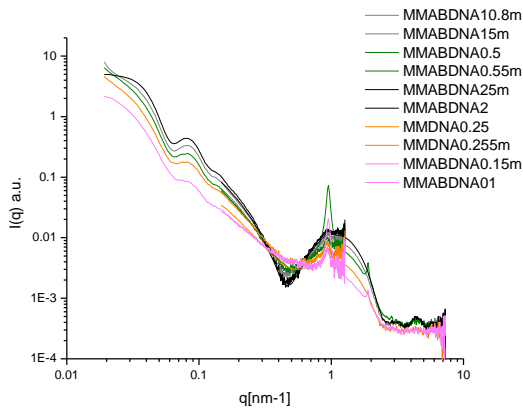
**Report:**

We performed SAXS and WAXS experiments on ID02 on the following systems:

- a) multicomponent lipoplexes composed by neutral (DOPE, DOPC from Avanti Lipids), cationic (DOTAP, Dc-Cholesterol) and DNA ( purchased from Sigma Aldrich), with different lipid molar ratio.
- b) MENS composed by a P/ DNA core (Protamine sulfate MW = 5.1 kDa and DNA , and cationic liposomes (DOPE, DOPC, DOTAP, Dc-Cholesterol) or anionic liposomes (DOPE, DOPC, DOPG,DOPA).
- c) Interaction of different types of MENS and lipoplexes with anionic Model Membranes both unilamellar and multilamellar.

Two sample-detector distances were chosen to investigate a high q range.

Several frames were taken to obtain better statistics. Empty plastic capillaries and water were measured all along the experiment.



In the graphics we report two examples of results on the interaction between lipoplexes and MENS with anionic model membranes (MM). Unilamellar vesicles have been used as target membranes. Different spectra refer to different Nanoparticle- MM molar ratio. It is not possible to reconstruct the intermediate spectra as a weighted sum of the two systems.