

EUROPEAN SYNCHROTRON RADIATION FACILITY

INSTALLATION EUROPEENNE DE RAYONNEMENT SYNCHROTRON



Experiment title:

Influence of icrocaptide on the structural properties of model mixed charged/non-charged lipid membranes

Experiment number:
SC-2501

Beamline:

Date of experiment:

from: 19-09-2008 to: 22-09-2008

Date of report:

Shifts:

9

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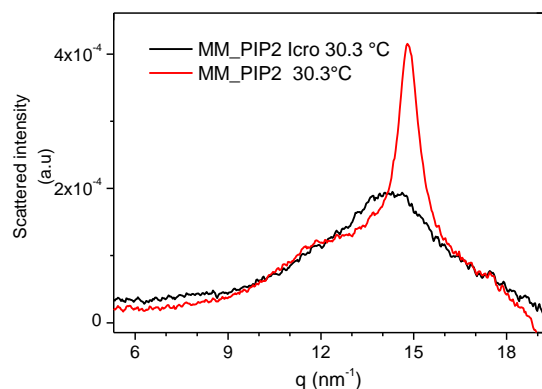
Report:

We tested the effect of adding icrocaptide, in a mol fraction range consistent with the one assessed for biological activity, on the structure of mixed domained vesicles. We performed small angle X-ray scattering measurements on ID02 beamline on mixed systems containing a neutral PhosphatidylCholine (PC) lipid as a matrix and various charged lipids as a second component (Phosphatidyl Inositol (PI), Phosphatidyl Inositol Phosphate (PIP), Phosphatidyl Inositol 2Phosphate (PIP2) lipids and GM1 ganglioside). Also Phosphatidyl Serine (PS) has been tested, as a non-sugar charged lipid.

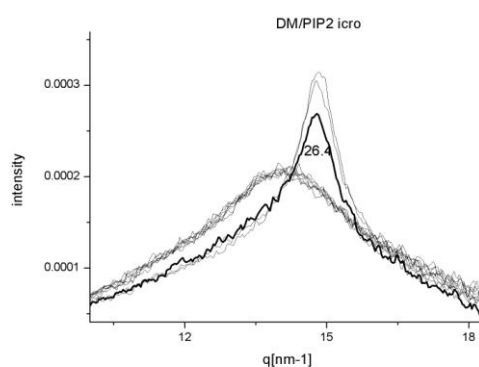
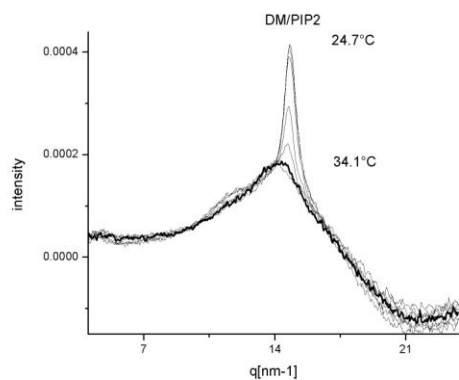
After the measure of each vesicles solution, we added icrocaptide directly in the capillary already mounted on the beamline. Both SAXS and WAXS spectra have been collected at different temperature, across the lipid chains melting transition.

We obtained good WAXS spectra after background subtraction (water and capillary contributions), thanks to plastic capillaries from ENKI.

The addition of icrocaptide in the solution deeply alters the phospholipid chains order in the case of (PIP2) – PC mixed vesicles, as reported in the WAXS region figure.



Measurements have been performed during temperature scans (up and down) WAXS as a function of temperature.



Also the bilayer form factor (SAXS region) is affected by the addition of icrocaptide at low temperatures (below the lipid chains melting transition temperature)

