EUROPEAN **S**YNCHROTRON **R**ADIATION **F**ACILITY

INSTALLATION EUROPEENNE DE RAYONNEMENT SYNCHROTRON

ESRF	**Experiment title:** **Mixing properties of ganglioside containing aggregates**	**Experiment number**: **SC-2877**
Beamline:	**Date of experiment**: from: 14-05-2010 to: 18-05-2010	**Date of report**:
Shifts: 9	**Local contact(s)**: Manuel Fernandez-martinez Jeremie Gummel	*Received at ESRF:*

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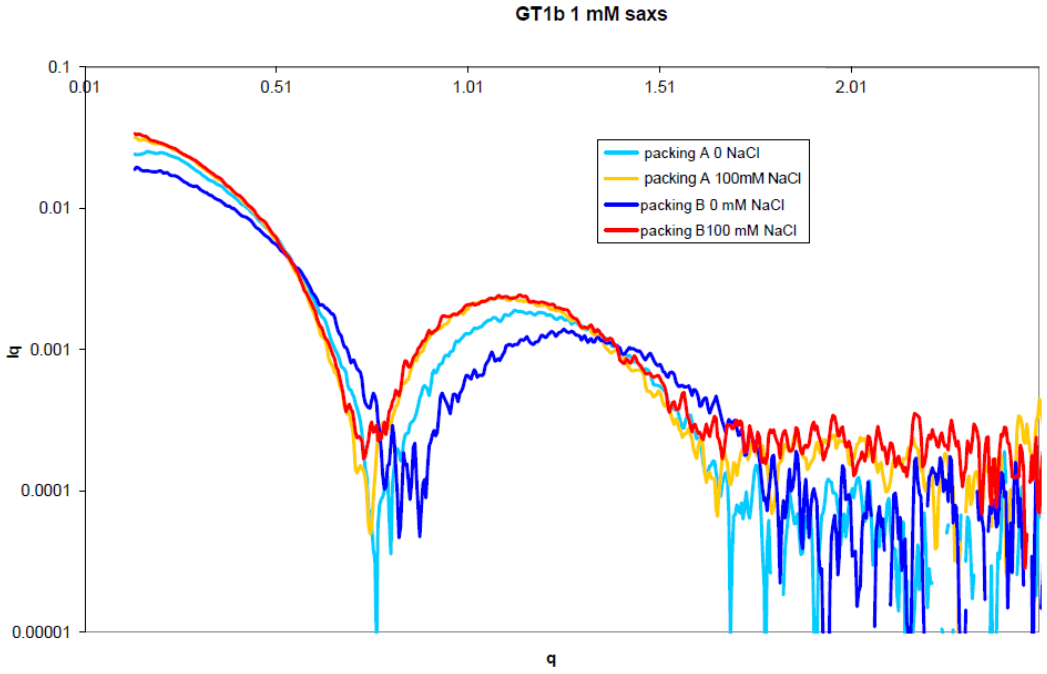
Report:

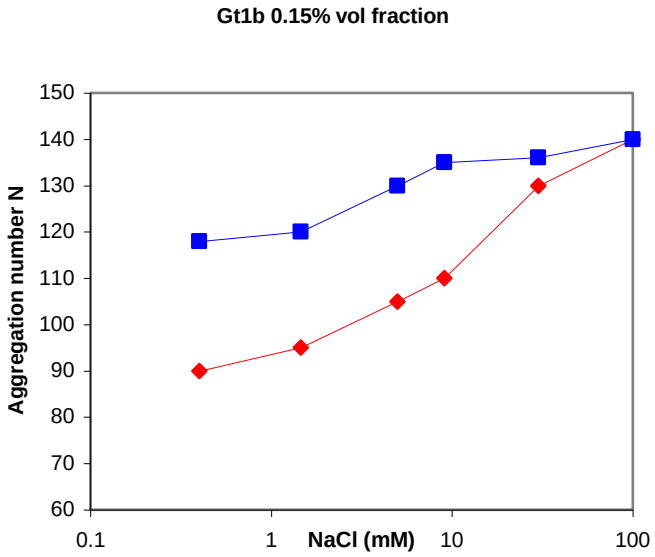
We performed experiments on different gangliosides systems, glycolipids with bulky and charged multi-saccharide headgroups and sticking ceramide hydrophobic moiety. The aim of the proposal was to investigate the interplay between this two characteristics that gives rise to a series of peculiar behaviours, both at the intra-aggregate and inter-aggregate scale. As an example of the very interesting results on different gangliosides, we report results on micelles of GT1b, carrying three dissociable groups per molecule.

Spectra refer to GT1b (1 mM) as a function of added salt (0-100 mM NaCl). Packing A and B indicate two different values for size and aggregation number N, due to different spatial arrangements Gt1b headgroups can assume in the aggregate, with different values for the interfacial area *A*.



We fitted the micellar form factor and we obtained the aggregation number N as a function of the added salt (NaCl) for the two packing arrangements (blue for packing A, red for packing B). When inter-particle interactions are negligible (100 mM NaCl), the packing arrangement is unique, while when inter-particle interactions raise up, the ganglioside can aggregate in two stable different packing arrangements.

Those results indicate that GT1b, in the very dilute range of concentration, displays a crossover region between the range where inter-particle or intra-particle interactions prevail.


Gt1b 0.15% vol fraction
Aggregation number N
150
140
130
120
110
100
90
80
70
60
0.1
1
NaCl (mM)
10
100