



Experiment title: A BioSAXS Study of the Self-Assembly of Lipopeptides Containing Fragments of the Peptide Hormone PYY	Experiment number: MX-1869	
Beamline:	Date of experiment: from: 1/12/16 to: 2/12/16	Date of report: 25/1/17
Shifts:	Local contact(s): Louiza Zerrad	<i>Received at ESRF:</i>

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Report:

A SAXS study was performed on the fibrillization of lipopeptides. This is relevant to the understanding of processes implicated in the formation of lipopeptide hydrogels and paths for receptors activation. Experiments were performed using the automated multi-well plate system available on the BioSAXS beamline B29.

To understand lipopeptide hydrogel formation, SAXS experiments were performed on solutions with varying peptide concentration, for a family of three lipopeptides (l-l, l-m and l-p) with different lipid chains (C_{12} for l-l; C_{14} for l-m; C_{16} for l-p) but the same peptide block, consisting of a sequence of 13 aminoacids. Figure 1 shows some representative examples of the SAXS curves measured for these samples.

In order to understand receptor activation mechanisms, the SAXS of a family of two Lipopeptides (Lipo-1 and Lipo-2), with the same lipid chain (C_{16}), but different peptide block was investigated. Representative results are displayed in Figure 2.

This data is currently being analysed further (e.g. via Guinier analysis and the fitting of the SAXS data using convenient form factors to determine structural parameters) and other complementary experiments are planned. A publication concerning the self-assembly of the three lipopeptides l-l, l-m and l-p studied during this beamtime has been submitted for publication¹.

References

1. Castelletto, V.; Kaur, A.; Kovalczyk, R. M.; Hamley, I. W.; Reza, M.; Ruokolainen, J., Supramolecular Hydrogel Formation in a Series of Self-Assembling Lipopeptides with Varying Lipid Chain Length. *submitted 2017*.

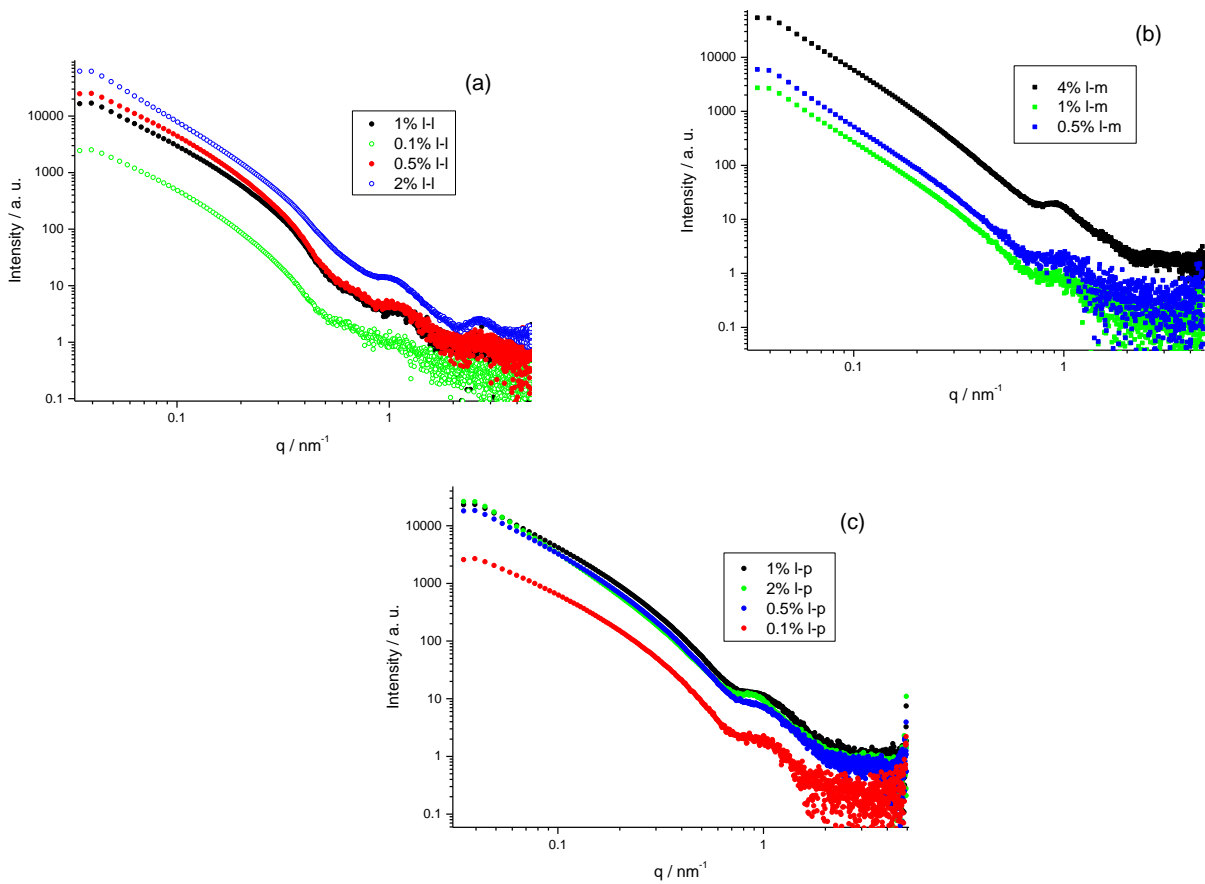


Figure 1. SAXS data for lipopeptides (a) l-l, (b) l-m and (c) l-p under the conditions indicated.

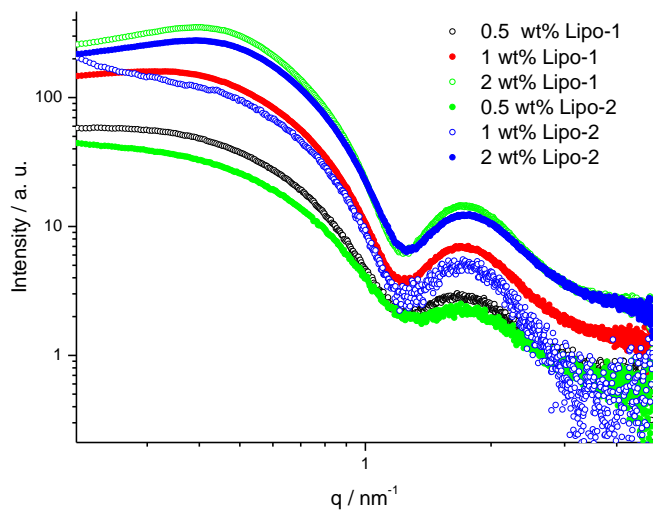


Figure 2. SAXS data showing the profiles for 0.5, 1 and 2 wt% Lipo-1 and Lipo-2.