ESRF	**Experiment title:** A BioSAXS Study of Metal-Ion Induced Aggregation of the Amyloid Beta Peptide	**Experiment number**: MX-1401
Beamline:	**Date of experiment**: from: 12/9/12 to: 15/9/12	**Date of report**: 30/1/13
Shifts:	**Local contact(s)**: Louiza Zerrad	*Received at ESRF:*

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Report:

A SAXS study was performed on the fibrillisation of the amyloid beta (Aβ) peptide in the absence and presence of metal ions. This is relevant to the understanding of Aβ fibrillisation, implicated in Alzheimer's disease and specifically the influence of metal ions on this process. SAXS experiments were performed on solutions with varying Aβ and salt concentration were performed using the automated multi-well plate system available on the BioSAXS beamline B29. Fig.1 shows representative data for Aβ(1-42) in the presence of CuCl2 showing the development of a fibrillar structure over a timescale ~10hrs. Unfortunately, solutions with ZnCl2 did not give good SAXS profiles. Fig.2 shows an example of a study of the kinetics of fibrillization of Aβ(1-42) in the absence of metal salts.

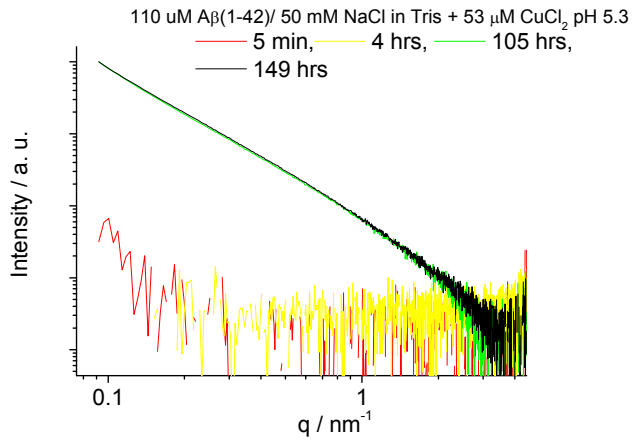

Fig.1. SAXS data for Aβ(1-42) with $CuCl_2$ under the conditions indicated.

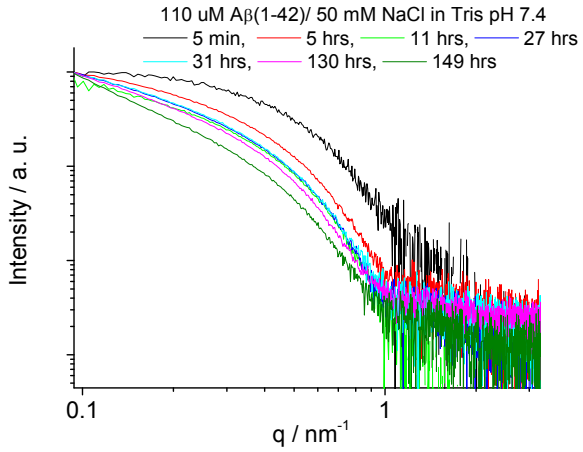

Fig.2. SAXS data showing the kinetics of fibrillization of Aβ(1-42) in buffer under the conditions indicated.

This data is currently being analysed further (e.g. via Guinier analysis to determine the growth of fibril dimensions) and other complementary experiments are planned. Further publications concerning the self-assembly of related peptides studied during this beamtime are submitted[1,2] or in preparation.

References

1 I. W. Hamley, A. Dehsorkhi, V. Castelletto, S. Furzeland, D. Atkins, J. Seitsonen and J. Ruokolainen. *submitted*, 2013.

2 I. W. Hamley, A. Dehsorkhi, V. Castelletto, J. Seitsonen, J. Ruokolainen and H. Iatrou. *submitted*, 2013.