The Protein folding and Ligand Interaction Core facility

ProLInC

- a trans-national access site for MOSBRI

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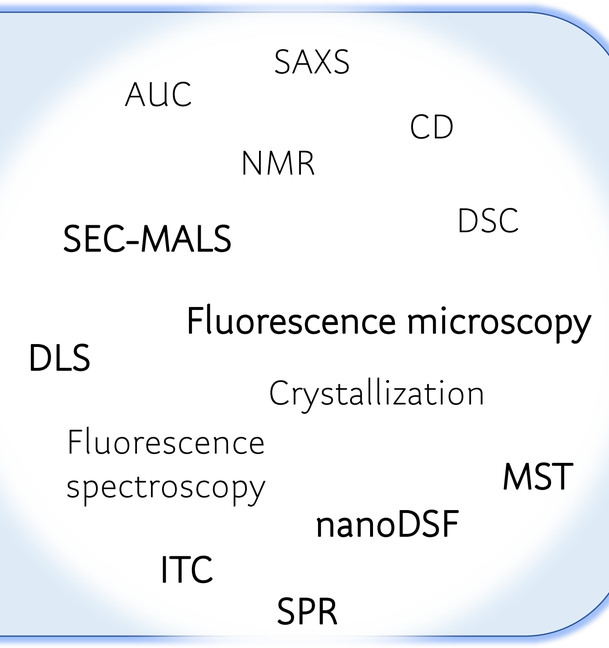
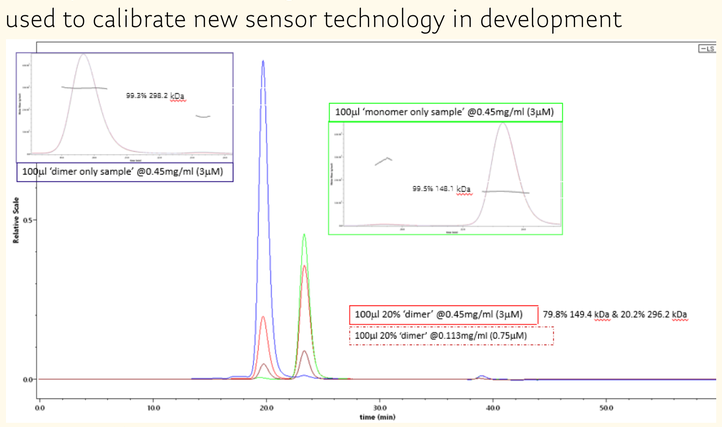
- Do you need access to Biophysical instrumentation;
- Or want (*help*) to characterise biological samples and their complexes?

- ProLInC (the PROtein folding and Ligand INteraction Core facility at Linköping University) has been established as a one-stop resource integrating a vast array of instruments and techniques … for such needs.
- The facility provides an entry point to MOSBRI (the EU-program for biophysics: 'MOlecular-Scale Biophysics Research Infrastructure') offering international access with user support.
- The supporting staff have a diverse background with expertise in a number of different scientific areas … facilitating experimental design and optimisation.

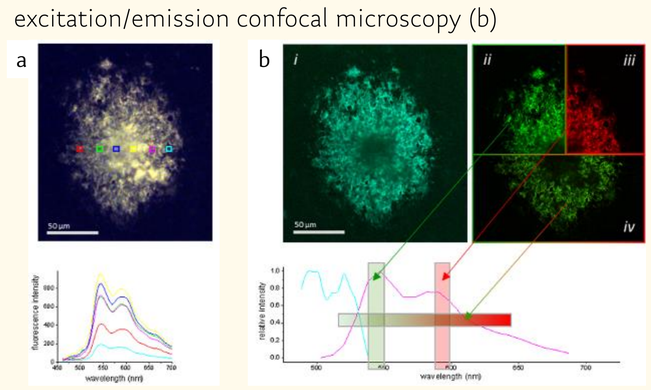


SEC-MALS ->
used as a robust benchmarking tool…
…samples with different IgG 'monomer' to 'dimer' ratios were used to calibrate new sensor technology in development



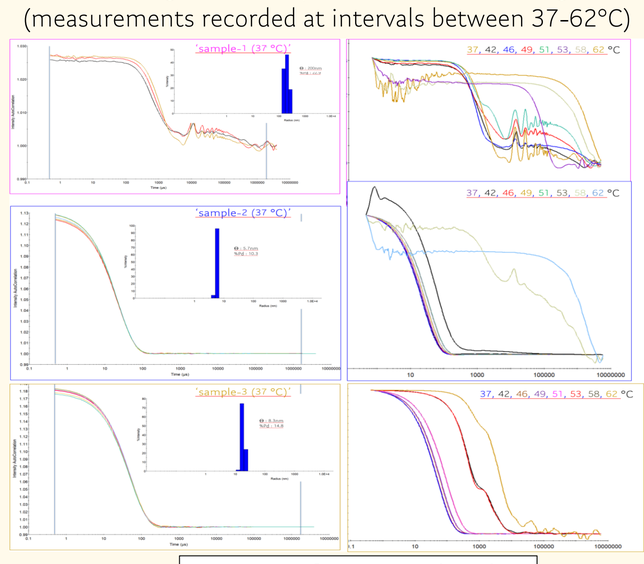
Courtesy of Thuy Tran

Fluorescence microscopy ->
successful development of aggregate/amyloid differentiating dyes… demonstrated through hyper-spectral fluorescence spectral analysis (a) combined with excitation/emission confocal microscopy (b)



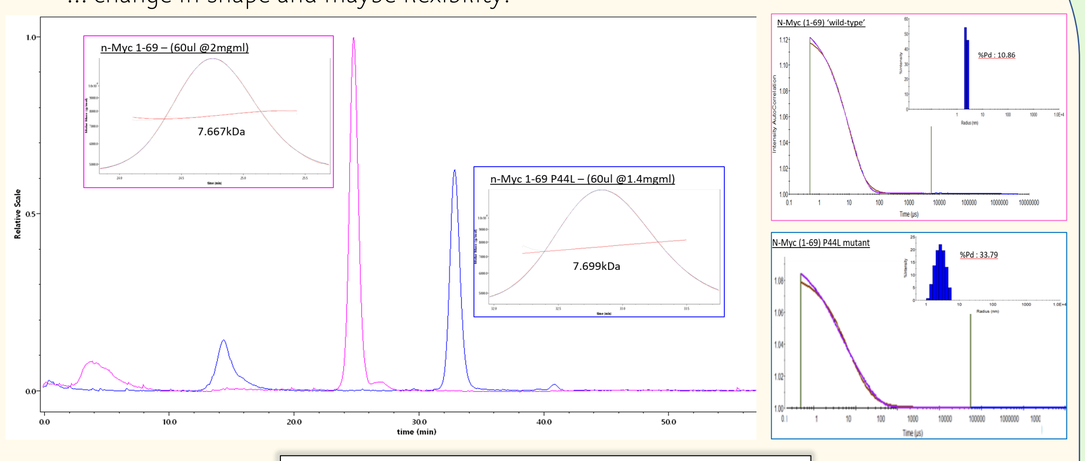
Courtesy of Sofie Nyström *et al.* [1]

DLS ->
characterising the 'cloud-point' of different detergents (measurements recorded at intervals between 37-62°C)



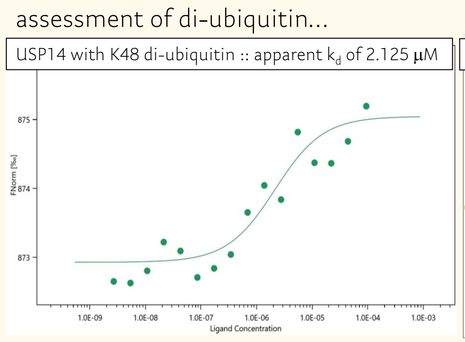
Courtesy of Emmanuel Berlin

SEC-MALS combined with DLS ->
characterises the effect of the P44L mutation in N-Myc…
… change in shape and maybe flexibility!

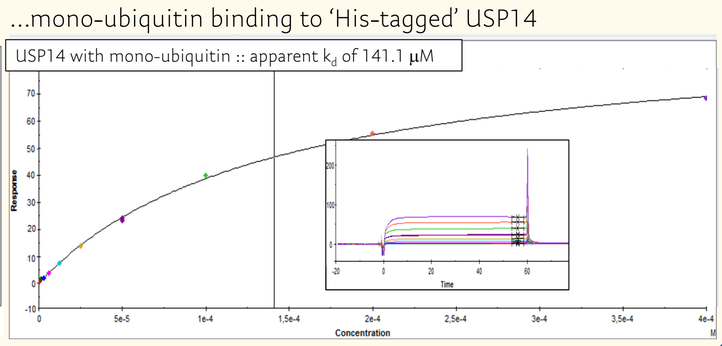


Courtesy of Johanna Hultman & Vivian Morad

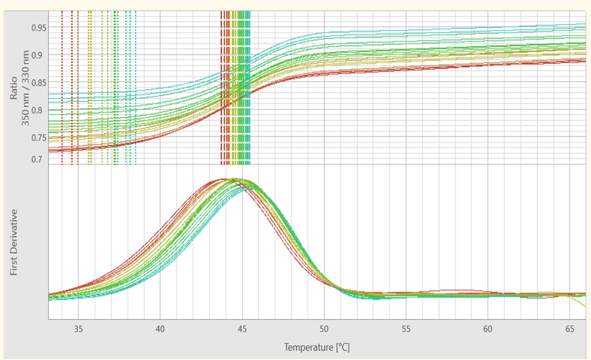
MST ->
assessment of di-ubiquitin…



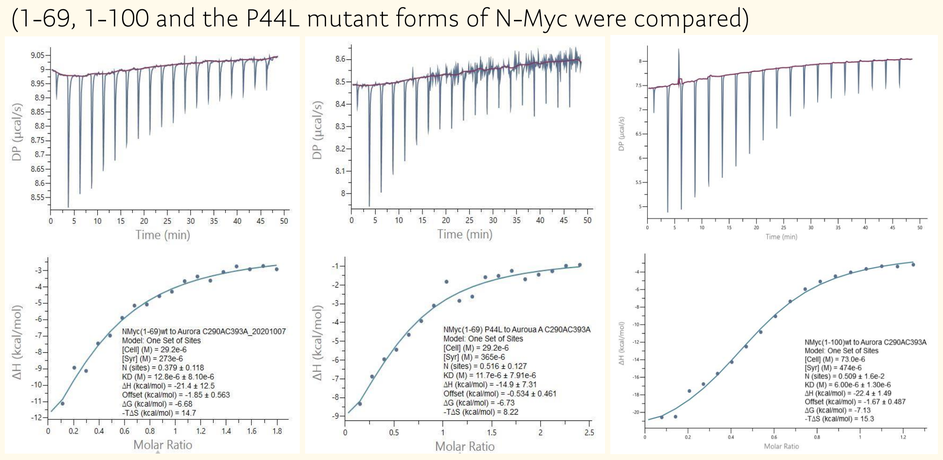
vs SPR ->
…mono-ubiquitin binding to 'His-tagged' USP14



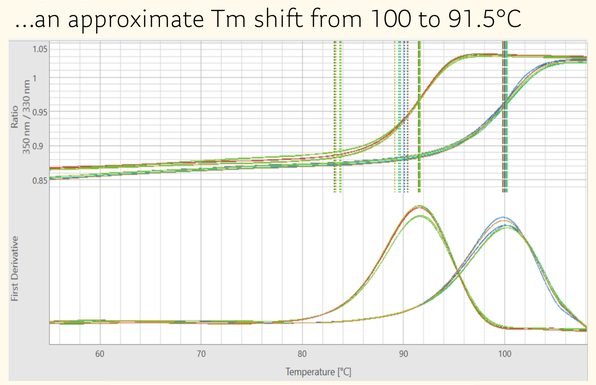
nanoDSF based 'thermal shift' assay ->
a stabilising interaction between N-myc and Aurora-A can be demonstrated.



ITC ->
affinities of different N-myc constructs towards Aurora-A appear to be comparable (1-69, 1-100 and the P44L mutant forms of N-Myc were compared)



NanoDSF ->
highlight the effect of a de-stabilisation mutant…
…an approximate Tm shift from 100 to 91.5°C



Courtesy of Per Hammarström

- ProLInC is a major component of **SMILE**: an initiative to improve Small and Medium Enterprises (SME) access to experimental and computational laboratory infrastructures; as well as deepen collaboration between academia and business.

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ProLInC liu.se/en/research/prolinc

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1) Nyström S, Bäck M, Nilsson KPR, Hammarström P. *J Vis Exp*. 2017;(128):56279.