

Protein quality control for structural biology

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Currently a huge amount of research time and money is wasted due to a lack of reproducibility of many scientific experiments. In cases where biological reagents such as proteins and antibodies are involved, this lack in reproducibility is often due to a bad quality of these reagents. As a group of professionals daily involved in protein production and protein characterization, we are often confronted with these irreproducibility issues in our field.

Our Sample Preparation and Characterization (SPC, EMBL Hamburg) facility supports external researchers carrying out experiments on the synchrotron beamlines and has a strong track record in the development and implementation of new technologies and approaches. The biophysical platform includes cutting-edge technologies to measure interactions and to precisely determine the stability, shape and size of different biomolecules and biomolecular assemblies identifying the most suitable biophysical techniques to answer the biological questions the researchers are trying to tackle. In my lecture I will be presenting characterization techniques including calorimetry, mass spectroscopy, circular dichroism, fluorescence, microscale thermophoresis, dynamic/static light scattering, infrared spectroscopy, surface plasmon resonance and bilayer Interferometry and crystallisation approaches. I will describe a pipeline from the lab bench to the beam lines', helping to optimize and prepare samples for structural studies.